



IMPRIMATUR,

Tho. Tomkyns R. R^{mo}. in
Christo Patri ac Domino,
Domino *Gilberto*, divinâ
Providentiâ, Archiepisco-
po *Cantuariensi* à sacris do-
mesticis.





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S. E. K.

THE
CHYMICAL GALENIST:
A
TREATISE,
WHEREIN

**The Practise of the Ancients is
reconcil'd to the new Discoveries
in the Theory of Physick;**

**Shewing, That many of their Rules,
Methods, and Medicins, are use-
ful for the Curing of Diseases in this
Age, and in the Northern
parts of the World.**

**In which are some Reflections upon a Book,
Intituled, MEDELA MEDICINÆ.**

**By George Castle, Dr. of Physick, lately Fellow
of All-souls Colledge in Oxon.**

*Navim agere ignarus navis timet, abrotanum agro
Non audet nisi qui didicit dare, quod medicorum est
Promittunt Medici : tractant fabrilis fabri.
Horat. l. 2. Epist. 1.*

**London, Printed by Sarah Griffin for Henry Twyford in
Vine Court, middle Temple, and Timothy Twyford
at Inner Temple Gate. 1667.**



TO
My Honour'd and Learned
FRIEND,

Dr. THOMAS MILLINGTON,
Fellow of
ALL-SOULS Colledge
IN
OXON.

SIR,



Hese Papers (some
sheets of which, I
two years since
took the freedom
to shew you) had,
within some few
Weeks after your sight of them,

A 3 waited

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waited upon you in this dress into which now the Printer has put them, if the Plague had not disappointed my intentions, which, coming to the Town where I liv'd, forc'd me from my House and Studies, having not (I confesse) courage enough, to expose my self and Family to the mercy of so dismall a Disease, against which, flight is the onely infallible preservative.

My occasions since have been so many and pressing, that I have had little leisure to collect my scatter'd Papers, and therefore, I must intreat your pardon, as well for the slow performance of my promise, as for whatever else you shall meet with in the Treatise, which may stand in need of it.

My design is, to shew, that though the *Physiology* and *Patho-*
logy

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logy of *Physick*, ought to be modelled according to the new Discoveries in Anatomy, and the Democritical and Chymical Principles, yet that many of the Rules, Methods, and Medicines, which more immediately respect the useful and practical part, are still to be retained, and that they are rather more reconcileable to the Modern, than they were to the Ancient *Hypotheses*.

For, the practical part of *Physick* being grounded upon Experience, does not so much depend upon the notional, that, this being overthrown, the other must necessarily fall to the ground. The fancies and reasonings of *Philosophers* and *Physicians* were built upon the practise, and signifie not much more to the Fundamentals of the Art of *Physick*, than pinnacles to

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the body and foundation of a Building, which (though they be blown down) may stand unshaken.

Much of the Therapeutick part of *Physick* is like Dials and Almanacks, which agree as well with that of *Copernicus*, as *Ptolemy's Hypothesis*. For as the Ancients made a true use of the light and heat of the Sun, in distinguishing and measuring Times and Seasons, and managing of their Husbandry, though probably they err'd in their Notion of his motion round the Earth; so did *Physitians* no lesse, happily, imploy *Apollo's* Art in the curing of Diseases, though they were ignorant of the true motion of the Blood, and of (the Sun of the *Microcosm*) the Heart.

It is (I know) objected, To what end have been all these new Discoveries in *Physick*; and to what

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what purpose is a farther Inquiry,
if the practise be not altered by
them? But to this Objection it
may be easily answered, that
though many of the Rules, Me-
thods, and Medicins of the Anci-
ents be still in force, and must be
made use of in the curing of Dis-
eases; yet, when we consider, that
in this Art, there must be much
left to the judgment and discreti-
on of the *Physitian*, as to under-
standing of the Disease, the Com-
plications, and the applying of
the Methods, and Remedies sea-
sonably to mens particular Con-
stitutions, it will appear, that an
Artist (who proceeds from true
principles) is as much to be pre-
fer'd before a bare practitioner,
as a good Architect before a com-
mon Bricklayer, or Mason, who,
though by his practice, he has learnt

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to build a Wall, or a stack of Chimneys, will be necessarily at a losse in designing a great and regular Fabrick.

It is (I confesse) an absurd temper to be so morose, so addicted to authority and antiquity, as to shut our eyes, lest they should discern a new Truth, and rather disbelieve our own Senses than the Writings of *Hippocrates* and *Galen*. But, on the other hand, the humor is no lesse ridiculous, to put on the same levity in matters of *Philosophy* and *Physick*, as we do in *Clothes*, to like nothing which is not of a new fashion; to have a greater esteem for Error and Nonsense in a modish Garb, than Truth and Wisdom in an old-fashioned Dress. Though we see farther than the *Ancients* did, we must acknowledge, that we stand upon
their

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their Shoulders; and, if we will be ingenuous, that we are the Dwarfs and they the Giants.

∴ We need not (I think) in our age, apprehend any danger to *Physick* from an over-fondness of *Antiquity*. The growing evil is the other Extream, a fancy of rejecting the wisdom of the *Ancients*, for the follies and whimsies of some phantastical *Pseudo-chymists*, which is, like the *Americans*, to barter Gold and Silver, for Beads and Glass.

Sir, Our Nation is of late grown as fond of Enthusiasts in *Physick*, as they were of those in *Divinity*; and Ignorance (amongst some men) is become as necessary a qualification for the practise of *Physick*, as it us'd to be for *Preaching*. I cannot believe, that the delight which the Vulgar (nay, and some Wise men)

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men) take in being cheated by *Mountebanks*, proceeds from any principle in Nature, which inclines them to it. But rather think it to be caus'd from Impostours being more industrious in deluding the World, than the true Artists in undeceiving it.

There has of late been one of them wondrous busie in possessing the rabble (to whose capacity his Discourse is suited) against the learned *Physitians* of the Colledge of *London*, and all others, who have been bred up, and taken degrees in *Universities*. He puts them into his own Bears skin, and then baits them. He would make the World believe, that they are a company of narrow streight-lac'd men, who onely confine themselves to Books, and never study Nature, and that they stifle and suppress all occasions

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occasions of improving their Art. I do not wonder, that they meet with so ill usage at his hands, whose business and profession it has been for above twenty years, to libel almost all sacred and honourable persons of this Nation. I have in this Treatise, endeavored to vindicate them from his false aspersions, by shewing them to have been Authors of the New Improvements and Discoveries in *Physick*, and the great Promoters of Experimental *Philosophy*. By the way, I have thought it not improper, to make some reflections upon the Books of this bold and impertinent invader of *Physick*, and plausible vender of very popular non-sense.

The truth is, both *Mercurius Politicus*, the Author of *Medela*, and his Books are so inconsiderable, that they deserve not to be treated
with

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with any respect, & especially, since himself so inhumanly tramples upon the ashes of the Ancients, at that wild rate flings dirt upon the learnedst Society of *Physicians* in the World, and libels the *Univer. sities*, not only in his Book, but in his pretensions to have had his Education in them.

Yet, my design is not so much to concern my self in the man, or his scurrilous expressions, as to take occasion from those material points in *Physick*, which he has very idly and extravagantly stated, to treat of them more closely and pertinently, according to the best and truest grounds of *Philosophy* and *Physick*.

Sir, I have so far presum'd upon your friendship, as not only to trouble you with the reading but countenancing of this Treatise. If it be
not

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not suitable to the advantages
which I might very well have re-
ceived from a long acquaintance
with you (your converse being as
diffusive of Knowledge, as it is of
Kindness.) Pray believe that I
have minded more the being just
to my Promise than careful of my
Credit. Sir, I am

Your most obliged friend,

and humble Servant,

Westmin.

George Castle.

Martii. 10.

1666.

ERRATA.

PAGE 14. line 24. insert *to*. p. 22. l. 7. for *impart* read *invenit*.
 p. 25. l. 10. for *fixat* r. *fixat*. p. 38. l. 2. for *stomocace*,
 r. *stomacace*. p. 46. l. 2. leave out, *Dead of the Consumption*.
 p. 72. l. 23. for *worl* r. *world*. p. 73. l. 8. for *often escue* r. *often*
rescue. p. 79. l. 24. for *canproablye* r. *can probably be*. p. 89. l. 12.
 insert *should*. p. 100. l. 12. leave out *they*. p. 104. l. 6. for *Dis-*
ease r. *Diseases*. p. 115. l. 24. for *evaporate* r. *evaporates*. p. 133. l. 1.
 for *Cane* r. *Cave*. p. 43. l. 30. leave out *is*. p. 44. l. 27. for *pro-*
cata r. *procat* r. *procat* r. *procat* r. *procat* r. *procat* r. *procat* r. *procat* r.
 for *and* r. *in*. p. 169. l. 9. insert *be*. p. 172. l. 29. for *Manichearum*
 r. *Manicheorum*. p. 175. l. 19. for *this* r. *his*.

For other faults which have passed the
 Presse, I desire the Reader's courteous
 Correction.



T H E
Chymical Galenist.

CHAP. I.

THat there have been made of late very considerable discoveries in *Physick*; That the Art is yet farther improvable; and, That the *Galenick Hypothesis* is insufficient to give a satisfactory account of the *Phænomena* of Health, and Diseases, are no more news to this Age, than that *America* is found out; that some parts of the world are yet unknown; and, that the ancient Maps were imperfect: neither is this less questioned by *G-eographers*, than the other by *Philosophers* and *Physitians*, Wherefore in my opinion, the Author of *Medela*, ought to have been

B more

more civil to those sound Authors, (of whom, to compile a Book, he does every where, more than borrow;) than to make them speak to no purpose in his writings, who do alwayes, to so much, in their own: For, he might with no less extravagancy have inferred from *Columbus* his Discoveries in the great World; That it would be for the Interest of all Kingdoms, and Common-wealths, to furnish every pretender to Navigation (though never so ignorant) with Ships, Men, and Money, in hopes he may find out new Countries; than, from the famous *Harvy's*, or learned *Willis's*, in the lesser World, That it is for the benefit of Mankind, that the Lives and Purfes of men should lye expos'd to the cheat of ignorant Pretenders to *Physick*; upon presumption, that they may find out new Regions, new Flouds and Channels in the Microcosm. But, to perswade the World, that he, and his Brethren, the Mountebanks, are the onely Men, from whom *Physick* is to expect a farther improvement; he endeavours to render all those Physicians, who have more learning and modesty, than himself, as men wholly enslav'd to narrow Principles, and jejune Notions; and altogether confin'd to a beaten, and trite Road in *Philosophy* and *Physick* as
being

being enemies to all advancement of Knowledge : Which is a falshood so notorious, and obvious to be confuted, that I need only to examine, Who have been the Authors of the waste improvement of *Physick* (which *M. N.* himself acknowledges to have been in twenty years so heightened, that never any Science or Art in the World had such an advance, and alteration in so short a time) I use his own words; and it will appear, that the World is indebted to the true Artists, rational Physicians, learned men; and not to the *Medicastroorum Empiricorum Medicantiumque Kadavara*, the dregs and scum of mankind, as *Camerarius* calls them, to whom I will refer the Reader for a farther accompt of those precious Sons of Art; as desiring myself to be so civil to the Author of *Medela*, as not to give a Catalogue of that goodly pack of his Brotherhood.

M. del.
Med. p. 215.

Jo: an. Rodolph. Camer. r. Memor. Med. Centur. 1. p. 37.

To shew, that the improvement which *Physick* has receiv'd in this latter Age, ought to be ascrib'd to the learned *Physicians*, and men bred up in *Universities* and *Colledges*, I need go no further for Instances, than in our own Nation; and the rather, because (I believe) that Forrainers themselves will confess us to have far out-done the whole World in this matter: witness the Wri-

things of the renowned *Harvey*; the learned
 Doctors, *Glisson*, *Ent*, *Highmore*, *Whar-*
ton, and the present Ornament both of his
 University and Nation, *Dr. Willis*. For,
 notwithstanding that *M. N.* and some other
 Medel. Med. touchy-Heads, (as he calls them) like his
 P. 17. have pryed into one point, viz. 'Whether
 in the Practice of Physick, there need be the
 hundredth part of adoe about the Anatomy;
 especially seeing, that when the body is out of
 order by Diseases, the Blood and Humours
 have other vagaries than in their usual
 Channels: By his good favour, the great
 advantages which have accrued, both to the
 Theory and Practice of Physick, in these late
 years, must necessarily be acknowledged to
 have proceeded from the discoveries which
 have been made in Anatomy; and that Dogs,
 Pigs, and Monkeys, have contributed more
 to the advancement of Physick, than *M. N.*
 and his Fraternity ever did, or are like to
 do: Though it must be confessed, his en-
 deavours have not been wanting to be a Be-
 nefactor to the *Chirurgical Hall*; and possi-
 bly, being conscious that he might be more
 serviceable to Physick dead than alive, there
 was a time when he bid as fair for the Knife
 as any man. It is, I say, from the accurate
 inspections into Bodies, in which, of late,
 Physicians have been wonderfully curious
 and

Chap. I. The Chymical Galenist.

and industrious, that *Physick* has attained to that wonderful height : For, since the Circulation of the blood has been found out by Doctor *Harvey*, that being laid as a new foundation, the whole Fabrick has been built from the very ground.

The Parts of the Body, as to their Figure, Site, Relations, Vessels, Texture, Magnitude, Connexion, and Correspondencies, have been accurately examined, and their uses admirably assign'd. The blood, the nutritious, and nervous juyces have been by Dr. *Willis*, as to their Principles, Motions, Stagnations, Coagulations, Dissolutions, Exaltations, Præcipitations, and all Alterations, which are incident to Liquors, diligently considered ; and from thence (more plainly and mechanically, than from the Seminalities, and fretting and fuming of the *Archeus*, according to the *Chymists* ; or indeed the indisposition or distemperature of the solid parts, according to the *Galenists*) have the causes of Diseases been deduced, and excellently explained.

It is not, I think, to be question'd, that a man is as Mechanically made as a Watch, or any other Automaton ; and that his motions, (the regularity of which we call Health) are perform'd by Springs, Wheels,

and Engines, not much differing, (except as to the curiousness of their Work) from those pieces of Clock-work, which are to be seen at every Puppet-play. He, who has heard of *Drebels* Organ, which was set a going by the Sun-beams, or *Memnon's* Statue; or but seen the subtil Workmanship of one *Mark*, an *Englishman*, who, (as the learned *Muffet* reports,) made for a Flea a chain of Gold of a fingers length, with a lock and key to it; which was so finely and exquisitely wrought, that the smal animal with much ease drew it after him; and yet with the lock, key, and, chain, did not exceed the weight of a grain: He, I say who considers these works of Art, and compares with them the subtil contrivances of Nature, will certainly rest better satisfied in the Mechanical account of the operations, and diseases of an Animal, than in the *Ens Paoicum*, *Cagastrium*, *Illiastrum*, *Archæus Reilleum*, *Chironeum*, *Evestrum*, *Yleck*, *Trarames*, *Turban*, *Leffas*, *Srannar*, *Perenda*, *Zendi*, and a thousand such conjuring unintelligible words of the *Chymists*; and will plainly see, that Anatomy is of no less use in the Curation of diseases, than is the understanding of the Springs and Wheels of a Watch, to the man,

*Muffet In-
sect. Treat.
c. 28.*

*Sens de Cor.
& Diffen.
Chym. cum
Galen.*

man, who undertakes to mend it ; and probably this speculation will make a considering man think it as possible, with a preparation of *Antimony*, or *Mercury*, or any Universal Medicine, to mend a Clock when it is at fault, as with it to cure all the diseases belonging to the Body of Man : That the body ought to be Mechanically considered, not onely as to its actions, but also in relation to its Diseases ; is, I think, the Opinion of every sound *Philosopher*. *Des Cartes*, in his *Treatise of the Passions*, gives an account of what it is, wherein a dead Man differs from a living.

Let us consider, (saith he) that Death never happens through default of the Soul but onely through the corruption of one or other of the principal parts of our Body. And let us judge, that the Body of a living man doth differ from that of one dead, onely as much as a Clock, or any other Automaton, when it is in good order, and has within it the Corporal Principle of its motions, for whose use it was framed, and all other things, which are requisite to its action ; from the same clock or Engine, when it is broken, and the principle of its motions ceases to act.

*Des Cart de
pass. sent.
part. 1
Art. 6.*

The truth of this is abundantly evident to every mans Senses : The shape and fabrick of the Heart and Valves, the water-works of the Kidneys, the admirable workmanship of the Brain and Nerves, and the Artificial Structure of all other parts do evidently demonstrate the Mechanism of mans Body, and the usefulness, and necessity of Knowledge in Anatomy, both for the preserving of it in its due frame, and likewise for the setting it in good order, when it is out of it. *Fits of the Mother, Epilepsies, Apoplexies, Madness,* and sundry other diseases of the Brain and Nervous Parts, have usually by ignorant People, been ascribed to Witch-craft and possession of the Devil. And yet the causes of these astonishing distempers, may, without much difficulty be understood from an Anatomical consideration of the Brain and Nerves: The whole structure of which has been examin'd with so much industry and sagacity, by the incomparable Dr. *Willis*, in his excellent book *De Cerebro* ; in which, the wonderful Make of the Brain, the turnings and windings of the Vessels and Receptacles ; the commerce by the Nerves, with remote parts ; the Chymical production of the Animal Spirits ; and many more rarities of Nature, are so clearly deliver'd :) that now a skilful

Anato-

Anatomist may, without vanity, undertake to give a rational Account of those very strange Distempers and Affections of mans Body; which have formerly not only amazed the Vulgar, but caus'd the *Roman* Senate to break up their Assemblies, and adjourn their Consultations: Wherefore the Author of *Medela*, should, in my opinion, have been more wary in discovering his gross Ignorance, in this so material a Point, which is the Foundation and Corner-stone of *Physick*; and, without which, nothing solid can be established. And, as for the Reason, why his Touchy-head imagines *Anatomy* to be of little use in *Physick*, Because, forsooth, when the Body is out of order by diseases, the blood and humors have other Vagaries, than in their usual Channels: I do freely confess, I do as little understand his Vagaries, as, I believe, he does the true Motion of the blood, and other juyces.

As for *Chymistrie*, and his new Medicines and Secrets, wrought out of the fire, to which *M. N.* so much pretends; though I am a very great friend to that Art, and acknowledg, that *Physick* is indebted to it for many neat and effectual Remedies; yet I cannot be of that opinion, that by it all *Philosophy*, *Anatomy*, and *Method*, are to be justified

justled out of the Schools, and the Dispensatories out of the Shops.

For doubtless, the advantages which came from *Chymistry* to Medicine, were very slender and inconsiderable, till it fell into the hands of Rational Learned Men; who by adapting it to the *Atomical Philosophy* have made excellent use of the Analysing of Bodies, in giving an account of the Appearances of Nature; and, by using Chymical Remedies with good Method, have found a more speedy and pleasant way of curing Diseases, than probably was known to the Antients. But it does not in the least follow from hence, that presently all the Medicines of the Shops are to be flung away, which having been known, and tried by long experience, (the Mother of all Knowledge,) upon which the *Materia Medica* is wholly grounded, are not so lightly to be set-by.

Sennert. de
con. & dis-
sens. Chy-
mic. cum.
Gal. Cap. 18.

For that judicious Author, *Sennertus*, tells us in his sober Treatise, *De Consens. & dissens. Chym. cum Gal.* that *Chymists* do often too curiously waste both their time and their mony, in preparing those Medicines which Nature has rightly prepared to our hands; as if Conserves of Roses, and many other, as also Conditives and Powders, and Compounds made of these, were not

used

used in Diseases with great success, and often with more safety and convenience, than Oyls, or Spirits. Which (says he) I do not speak to the end that Chymical Remedies should be altogether rejected; which, in their place, deserve their due praise, and oftentimes have a prerogative before others: But to shew that Medicines either whole, or the common way prepared, are not all venomous, and therefore to be despised; but that they are of good use in their proper place. And he asks the Chymists, Whether they do not season the meat which they eat themselves, and give their Patients, with Spices onely powdered, and not with the Essences and distilled Oyls of them. And a little farther in the same Chapter, he tells us, that some Medicines have their virtues diffused through the whole body, and that they lose them if there be made a separation of parts; and, What need is there of using Essences, when a Glyster will do the business? Of the same opinion is that great inquirer into Nature, Mr. Boyle, in his *Sceptical Chymist*. There are, (says that learned Gentleman) divers Concretes, whose faculties reside in some one or other of those differing substances, that Chymists call their Sulphures, Salts and Mercuries, and consequently

Mr. Boyle
Scept. Chym.
p. 339. &
33.

'quently may be best obtained by Analy-
 'sing the Concrete, whereby the designed
 'Principles may be had severed, or fre-
 ' from the rest; so there are other wherein
 ' the noblest properties lodge not in the
 ' Salt, or Sulphur, or Mercury, but depend
 ' immediately upon the form, or, (if you
 ' will) result from the determinate stru-
 ' cture of the whole Concrete; and conse-
 ' quently they who go about to extract the
 ' virtue out of such bodies, by exposing
 ' them to the violence of fire, do exceed-
 ' ingly mistake, and take the way to de-
 ' stroy what they would obtain. And he
 ' quotes the confession of *Barthius*, in his
 ' Notes upon *Beguinus*, *Valde absurdum est*
 ' *ex omnibus rebus extracta facere, salia, quin-*
 ' *tas essentias; praesertim ex substantiis per se*
 ' *plane vel subtilibus, vel homogeneis, quales*
 ' *sunt Uniones, Corallia, Moschus, Ambra,*
 ' &c. Consonant whereunto (continues
 ' Mr. Boyle) he also tells us (and vouches
 ' the famous *Platerus*, for having candidly
 ' given the same Advertisement to his Au-
 ' ditors) that some things have greater
 ' virtues, and are better suited to our hu-
 ' mane nature when unprepared, than when
 ' they have passed the Chymists fire; as we
 ' see in Pepper, of which some grains swal-
 ' lowed, perform more towards the relief
 of

of a distempered stomach, than a great quantity of the oyl of the same Spice. Anertus, in the Chapter which I last quoted, speaks to the same purpose; *Viresque integras, quales a Natura obtinent, retinent, nec ignis vi ac resolutione quicquam miserint; & propterea morbos saepe tollant, qui chymicis medicamentis tolli non possunt: sicut Hearnius refert, se colicos dolores plasse saepe decocto anisi, quos oleo ejusdem destillato tollere non potuerit. Id quod etiam in aliis accidit. Thus enim integrum curat vulnera, quae oleo ejusdem non curantur.* Zwelfer, in his *Animadversions* upon the *Augustin Dispensatory*, prefers the Powders of Pearl, Coral, Harts-horn, and the like, before the Magisteries: Nay, he says, *line & reliqua Magisteria ex Corallis & similibus gemmis parvi pendo, immo penitus rejicio.* And certainly, there is very good reason why the bare Powders should be of much more virtue than the Magisteries; for these being made by an intimate union of the fluid Salts of the Menstruum, with the particles of the body dissolved by it, (by which the Menstruum is itself insipid,) those Powders being already log'd and saturated with Salts, are rendered thereby unapt to sweeten the acid juices of the stomach; and those which are mingled

*Animad. Jo.
Zwelfer.
p. 782.*

mingled with the blood, or to restore and refresh the decayed and languishing fermentments of the Bowels, upon which I conceive these Medicines are usually administered by men who understand their way of Operation. For the same reason it is, that Powders of Pearl, or Coral, will ferment, and boyl with spirit of Vitriol, but the Magisteries will not. Nor is an over-fondness of all things which do smell of the Furnace the cause only why many good Medicines are deprived of their virtues, and rendered ineffectual. But too often likewise of the ruin and murder of many sick persons, who not being Physicians themselves, and so not able to judge of the ability of the person to whom they commit their health; are often cheated out of their lives, by the impudent assertions of ignorant pretenders to Secrets, and Chymical Inventions: In comparison of which, they despise the whole Art and Method of administering Physick. Paracelsus is taxed by the learned Crato, in his Epistle Theodorus Zwingerus, (and yet that judicious man was no enemy to Chymistry:) *In multis Rebus-pub. & Animi cum hominis mei quadam iactura, Chymica Medicamenta sum tutatus, nihil ante 40. annos oleorum distillatorum, nullum extractum, nullum succus in pharmacopoliis est repertus*

To Crato.
Epist.

me autem pharmacopaei & medici, beneficio
ei, successu medicationis edocti sunt, ut nunc
bique ea parent & iis utantur. Insaniam
ero Paracelsi (qui summos in Arte Magi-
ros, immo ipsam artem medicam propter sua
arcana ut appellat, contemnit & novam nobis
furnis medicinam fabricat, atque discipulos
bonis Autoribus ad fornaces ablegat, omnem
emique seculi nostri excellentiam deicere stu-
di, ut sua medicamenta extollat) nunquam
robavi.

And in another Epistle to Thomas Era-
smus, he tells him what the Emperor's opini-
on was of this Celsus Paracelsus (as M. N.
learnedly quotes the quibble).

Imperatorem quem à maledicentia, & fal-
sitate alienissimum esse sciunt omnes boni,
Paracelsum mendacissimum & impudentissi-
mum impostorem, qui cum doctis hominibus
nunquam condescendi voluerit, nominasse. The
frequent miscarriages which he was guilty
of; his often bringing slight Distempers, by
the application of his Remedies, into dange-
rous and mortal Diseases, as the Particulars
are quoted by Sennertus; and then his own
sickness and death, which (though he promi-
sed almost Immortality to other men) he
could not defer beyond 47 years; nor in the
mean time with his so much admired skill,
free himself from Contractions and Convulsi-
ons,

Sen. de cor.
& diss.
Chym. cum
Gal.

ons, do sufficiently evince, That it is easier for the *Chymists*, to abound with large Promises, than real Performances.

Mr. Boyle
Scept. Chym.
pref.

The unfaithfulness and affected obscurity of their Writings, is justly reprehended by Mr. Boyle, in his Preface to his *Sceptical Chymist*. 'These things I add (sayes he) 'because a person any thing vers'd in the 'Writings of the *Chymists*, cannot but discern, by their obscure, ambiguous, and 'almost ænigmatical way of expressing 'what they pretend to teach; that they 'have no mind to be understood at all, but 'by the Sons of Art (as they call them) 'nor be understood even by those, without 'difficult and hazardous tryals. And, as 'the obscurity of what some Writers deliver, makes it very difficult to be understood; so the unfaithfulness of too many 'others, makes it unfit to be relied on. For 'though unwillingly, yet must I for the 'Truths sake, and the Readers, warn him, 'Not to be forward to believe Chymical 'Experiments, when they are set down only by way of Prescription, and not of Relation. The candid acknowledgment and warning of this learned *Chymist*, gives a sufficient Caution to all Sober men, to be wary how they Dote, either upon Notions they understand not, or Prescriptions which cannot

cannot safely be relied upon (considering Credulity is in no Art of so dangerous consequence, as in Physick) so much as to reject all Maxims and Remedies in Physick, established by the long and infallible experience of the World ; for those which are recommended, either by the Inadvertency, or wilful mistake of an undiscerning, or deceitful Writer. And if this Circumspection ought to be used, even as to the best Chymical Writers ; how much more to Pseudo-chymists, against whom Mr. Boyle (though it be far from his temper) cannot forbear a just Severity, and, somewhat more than ordinarily, sharpens his Pen. ‘ I am ‘ far (sayes he) from being an Enemy to ‘ the Chymists Art, though I am no Friend ‘ to many that disgrace it by professing it, (M. N. take notice of that) and perswade ‘ them to believe me, when I declare, That ‘ I distinguish betwixt those Chymists that ‘ are either Cheats or but Laborants, and ‘ the true Adepts.

Mr. Boyle
Sc pt. Chym.
Prof.

For my part, I am resolved to be as favourable as it is possible, to M. N. and his Brethren the Mountebanks, and allow, That a person wholly ignorant of the Art of Physick, may be possessed of good Remedies, and that a Cure has sometimes ensued upon the casual application of them. But

C

notwith-

norwithstanding this accidental Success, there can constantly be expected no better performances in Physick from this mans unskilful administration, than in Limning from a hand altogether rude, though arm'd with the Pencils and Colours of *Vandike*. For, granting that by chance a Cure may happen (as the foam of a Horse was once admirably expressed by the casual dash of a Pencil) yet can that be no more relied upon, than a Duel for the cure of an Aposteme; or the rude embraces of a Lyon, to fright away an Ague. To this purpose, *Beguinus* gives Advice, and makes it his Request, That Physitians would not acquaint Mountebanks with his preparation of *Turpeth Mineral*. *Suaderem autem* (sayes he) *ut tonsores & balneatores nobilissimi hujus Medicaminis preparatio Philosophica plane lateret, ab usu hujus ut illegitimo se abstinerent. Quot enim quaeso ejusmodi homines Mercurio hoc precipitato, non Hermetice preparato, precipitarunt?*

Beguin. Tyr.
Chym. l. 2:
c. 18.

And he quotes the Opinion of that great Chymist *Libanius*, whose words I will the rather transcribe, because they very fully declare the Sense, which as well the Chymists, as the Galenists have, of that fatal Liberty in the Profession of Physick, which *M.N.* so hotly and extravagantly pleads for. *Illud cavendum*

venandum (says Libanius) ne audaculi imperiti in medicando, id adhibeant quod est medicorum circumspiciſſimorum exercitatiſſimorumque: Veluti ſi eſſentia ex ſublimato & regulo fiat, ſi flos ex antimonio, ſi laudanum ex opio, tu qui imperitus es methodi medendi & impudens, nec tibi facile nec aliis horum permitte uſum, cum temeritate; ut ut ſemel atque iterum forte poſſis, plus tamen deinceps peccare poſſis. Nam nobiles Medicinæ in manu temerarii hominis, ſunt ut culter, vel fax ardens, in manu pueri aut demeritis.

And queſtionleſs, as there is more danger that a Child may do miſchief with a Knife of Steel, rather than with one of Bone; the hazard which Men run of their Lives in taking Chymical Remedies at the hands of Empericks, is ſo much the greater, by how much the preparations which they uſe, are of more force and virtue.

That Phyſick may be adminiſtered with ſecurity to the Patient, it is not only requiſite that the Phyſitian underſtand the Nature and Force of the Remedy; but likewiſe the Conſtitution and Strength of the Patient, and the Nature and Motion of the Diſeaſe. As to the Nature and Force of Remedies, Experience is the only true and unerring Miſtreſs, upon whoſe Credit we

can certainly relie, for the knowledg of the Properties, Effects and Operations of all Medicines in the World upon the Humane Body. Remedies at first were either found out by Chance, or learnt from wild Beasts; who, by the kind Instinct of their Mother-Nature, resorted to them for help, when they were afflicted with Maladies. Thus the virtue of the *Didamnus* of *Creet*, to draw shafts and splinters out of Wounds, was learnt from the Goats of *Creet*, according to *Virgil*, *Plutarch*, and *Pliny*.

Virg. Æn. *Didamnus genetrix, Cretæa carpit ab Ida,
Puberibus caulem foliis, & fore comantem
Purpureo: non illa feris incognita capris
Gramina, cum tergo volucres hæsere sagitta.*

M. George
Stadys
T n.
Creete.

*With her white hand She crops from Cretan
Ide,*

*The Fresh-leav'd Stalk with flower in Purple
dy'd:*

*A Sovereign herb, well known to fearful Deer,
Whose trembling sides the winged Arrows bear.*

The *Agyptian Ibes* was the Inventer of Glysters; a Bird not much unlike the *Stork*, and a great Enemy to *Serpents*; who, filling his Beak with Salt-water, and spouting it up into his Guts when he was hard-bound,

bound, taught the World the convenience of provoking a Stool that way: The *Swallows*, by applying *Celandine* to the Eyes of their Young, and by it procuring to them sight, discover'd it first to the use of Men: I might instance in many more particulars, but these are sufficient. I will grant, that some Remedies have been found out by Analogy, from the enquiries of the Smell and Taste; and others possibly, by resolution of Bodies into their principles. But even these could not be relyed upon, till established by Experience: For if the virtues of many Simples depend upon the particular texture and disposition of the small Particles (as I have before prov'd they do) they will confess very little of their Natures and Properties to the *Chymist*, though he torture them ever so much with Fire, and other Dissolvents. And even in those Bodies; whose Faculties reside in their Salts or Sulphurs, their Specifick virtue (if they differ at all, as most *Chymists* and *Physicians* intimate by their Prescriptions that they do) cannot be known, by obtaining the Principle wherein it is lodg'd. Mr. Boyle quotes *Helmont*, For assigning a virtue of curing the Epilepsie, to the volatill Salt of mans Blood, which is not to be allowed to the volatril Salt of Urine; and he seems to promise an Account

Mr. Boyle
Sc p C yn.
p. 251.

of the same virtue in the Salt of common Amber as to children, but not grown persons. I do not urge this, to discourage any person from enquiring into the Nature of Simples (which certainly is a laudable Industry) but to shew, That it is not so easie, as the Author of *Medela* would make it, to impart Remedies, they being not in the least matter of phansie; and that such Medicins which have been established by the long experience of the enquiring and judicious part of the World, by whole Colledges and Universities, who have made it the business of their Life, to inform themselves and others; are not easily to be laid aside, for those which have been invented by some ignorant Man, nay, possibly, a knowing one; till they by undergoing the same test of Experience, are allowed by that to be more effectual, and less inconvenient in all Cases whatsoever. Histories are full of the frequent Tragedies which have been acted by *Muntebanks*, in administering Medicins, whose Nature and Power they understood not. About Two years since, having visited my honoured, learned Friend, Dr. Cox, Physician in Ordinary to His Majesty, he acquainted me, That he had been lately called to a Citizen of London, who, upon taking a Vomit from an *Emperick*, and a Hyperca-

percatarrhis ensuing upon it, fell into dismal Convulsions; in which, in despite of the most proper Remedies, he dyed. I do not wonder, that these sad Effects do often follow, upon the taking of *Physick* from ignorant Men: For the Universal Medicin of the *Empericks* being usually some or other ill preparation of *Antimony* in substance, if it chance not to pass upwards or downwards, but stick in the Coats of the Stomack, or be entangled in some tough viscous Matter, it being the Nature of that Mineral to communicate a vomiting quality, after it has impregnated several Infusions; no wonder, if lying in the Stomack, it continually imparts to the juyces, which flow thither out of the mass of blood, for a *menstruum* to dissolve the Meat, and to those Liquors which are taken in by the mouth, an emetick virtue, till the Patient, at length, has vomited up his Soul. Upon this Score, I do not find, that many *Physitians* are very forward in using *Mercurius Vita*, especially in Pills or a solid Form; which though I have us'd, and seen us'd with good Success; yet, I judge it, given in Substance, not so safe: and nothing more effectual, than the Infusion of that excellent good preparation of *Antimony*, *Crocus Metallorum*; which (though it be to be met with

in the Road of Dispensatories) with *M. N*'s good leave, is no contemptible Medicine. How much, in Medicins, Experience is to be valued, and how like a Toleration of Assassins it will look, to allow a Liberty to every *Quack* to make Experiments upon Mens bodies, will farther appear, if we consider, That the mixing of Things harmless in themselves, may sometimes produce a Poyson. Thus out of *Vitriol*, *Salt*, *Mercury*, and *Niter*, is made Sublimate; of *Vitriol*, *Niter*, and *Allum*, *Aqua Fortis*; which, though made of innocent Ingredients, are Mixtures most destructive to the Body of Man. And, I know not why in other Mixtures the same thing may not come to pass, which may never be considered by a bold and unwary Experimenter of Medicins; nor known, but at the price of a Murder.

In the next place, There is an absolute Necessity, that he who will venture to give *Physick*, be able to judge of the Strength and Constitution of the Sick person whom he undertakes, if he expects with Safety and Success to manage the matter. *Plutarch* in a Dialogue, introduces *Phadrius* and *Socrates* discoursing to this purpose.

Socrat: If any one should tell me, Truly I know how to apply these things to the Body, with which I can (when I please) make it hot or cold,

cold, vomit and purge, and cause other Evacuations; upon the understanding of which, I profess my self a Physitian, and affirm, That any man instructed with this Knowledge, may be one. What Answer do you think a Sober man would return to him?

Phædr: Truly none at all, but ask him, Whether he likewise understood, to whom, and when, and in what proportion every one of these Medicins are to be given? of which if he be ignorant, the man must certainly be mad; who upon the Score, either of Gleanings from Authors, or for having been present at the Cures of some Physitian, and understands nothing of the Art, thinks he is presently become a Physitian. Many excellent, and in the hands of Artists, most safe Medicins, have suffered in their Credit, by falling into the hands of such persons, who either by overdosing, or not suiting them to the Temper, Age and Sex of their Patients, have with them kill'd, instead of curing. Sen-
nertus tells us, That he knew Two Children kill'd by Two Old Women, with Oyl of Amber. One of the Children being scarce Ten days old, after the Woman had given it some drops of Oyl of Amber, broke out all over the Body, as if scalding water had been pour'd upon it, and presently dyed. The other, more adult, having taken the

Senneri. de
Con. &
Dissent.
Chym. cum
Gal. c. 13.

the same Oyl, dyed vomiting and scouring.

That very safe and effectual Remedy, *Mercurius dulcis*, so often celebrated in *Riverius*, under the name of *Calomelanos* (a name put upon it by Sir *Theodore Mayer*, from one *Faire-black* his man, who us'd to prepare it, as I find it in his Letter to my Father) has, in the giving of it to some Bodies and Constitutions, been accompanied with very ill Accidents. *Sennertus* tells of a Learned *Physitian* (a Friend of his) who had often given *Mercurius dulcis* to his Patients with very good Success, and yet was in danger to have dyed by the taking of it himself. And I have observ'd, That this Medicin does best agree with those, whose Stomacks abound with Crudities, as Children; and not so well with those persons, whose Stomacks and Blood abounds with fluid Salts, and are troubled with acidity, and sharpness of their Liquors. For *Mercurius dulcis* being made of sublimate Corrosive, and Quicksilver, by the subliming of which together, the sharp edges of the Corrosive Salts are blunted and abated; and so the Medicin sweetned, and made harmless; there is danger that in the stomach which abounds with Vitriolick Salts (for some I have seen, whose Vomits will gnaw Iron)

Sennert. de
Cor. &
Dissent.
Chym. cum
Gal. c. 18.

Iron) the dulcified *Mercury* may again be reduced to be Corrosive.

In the last place, That a Disease must be known, before it can be cur'd, is so generally received a Maxim, that it is become Proverbial with the Vulgar, That the knowledge of the Disease, is half the Cure. What skill in *Anatomy* and *Philosophy* is required to the knowledg of Diseases, I have already Discourſed; to which, if I shall add the Doctrines of Pulses, Urines, and all other Semeioticks, it will not appear so easie a thing, to understand the several Distempers of the Body of Man, that it may be presum'd, that every Old Woman or Jugler can cure them.

The time and motion of a Disease, are of so great moment in the giving of *Physick*, that the very same Remedy which sav'd a mans Life to day, may in the same Disease, at a different time, kill another to morrow. *Physitians* have taken great pains in distinguishing the times of Diseases, and proportioning Rules and Remedies to them.

The Learned Dr. *Willis*, in his Book *De Febribus*, tells us, of what grand Importance the consulting of the Pulse and Urine is in putrid continual Feavers; and clearly Demonstrates, That the Administration of Vomits, Purgers, Sweaters, Cordials, or Narcoticks,

*Willis de
Feb. c. 10.*

Willis de
Feb. c. 11.

coticks, without observance of due Directions taken from them, is of so dangerous Consequence, as that any of these Medicines unseasonably given, will cause or hasten the death of the Patient. In the 11 Chapter, the Doctor is very careful to set down what is to be done in the several times of the Disease; That in the Augment, both Purgers and Sweaters (which make too great a disturbance in the blood) are as dangerous and destructive, as blasts of wind are to a House, whose Rafters are all in a flame; and in the State, the motion of Nature is to be watched, nothing is unadvisedly to be attempted; Blood-letting, and strong Purgations are altogether forbidden. Nor is there only a necessity of consulting a Learned Physician in Diseases which are Acute, but even in those which are Chronical; nay, inasmuch as Agues, in which Empirical Remedies carry the Vogue. Can any Cure certainly be effected, except the very Tools of the Mountebanks be managed by a judicious hand? For in Tertians, Plaisters to the Wrists, Breast, and other parts, seldom stop the Fit, except Purging or Vomiting; or (if it be required) Bleeding has first with judgment been used, as Dr. Willis observes, and I have found most true by daily experience. Quotidians and Quartans require much more skill in the management

Willis de
Feb. c. 4.

nagement of them, there being several more intentions to be driven at than in Tertians, which require a rational Artist to apprehend and prosecute. I might run through all the Diseases in mans Body, and quote all the Cautions in *Ludovicus Septalius*, and others, to be used in the Cure of them, to farther evince, That Learning and Art are much more requisite to the preserving and restoring of Health, than affected Ignorance, and impudent Pretensions to Secrets and Revelations which are not at all in Nature. But having proved at large, That the Learned *Physitians*, have been the only Improvers of the Art of *Physick*; That the great Improvements in *Physick*, have been upon the Score of the Discoveries in *Anatomy*; That skill in *Anatomy*, is most necessary to the understanding and cure of Diseases; That *Chymistry* has been rendred serviceable to *Physick*, only by the rational *Physitian* and *Philosopher*; That *Medicins* are often spoiled by *Chymical preparations*; That *Chymical Medicins*, by the confession of the best *Chymists*, are to be used with method, and are dangerous in the hands of unskilful men; That the Books of *Chymists* cannot be relied upon, because they are obscure, and unfaithful; That the bragging of *Pseude-Chymists*, can much less be credited; That
it

it is not easie for them to experiment *Medicins*, nor invent new ones; That *Physick* cannot be administred, without the evident destruction of mens Lives, except the *Physician* understand the Nature and Force of the Remedy; the Constitution and Strength of the Patient; the Nature and Motion of the Disease. Having, I say, prov'd these particulars, I have answered all the grounds upon which *M. N.* pleads for a Liberty in the profession of *Physick*; and moreover Demonstrated, That that Liberty tends as little to the good of Mankind, as a Pestilence, War, or what is most destructive, to the Safety and Being of Humane Nature.

CHAP.

CHAP. II.

IN his second Chapter, *M.N.* pretends to prove, That there is so great an alteration in the Diseases of this present time, from what they were in former, as to make void and useless the whole Art of *Physick* deliver'd down to us from the Antients: But I do not question to make it appear, That the difference in Diseases both in relation to time and place, is not so great as he would make it; nor so considerable, but that a rational *Physitian* may make very good use of their Methods, Rules, and Medicines, in the Time and Countrey wherein we live.

I do not at all question, that Diseases here in *England*, are something different from those of the same kind in *Greece, Italy, France, and Spain*; and that they may in some particulars vary from the Descriptions left us by the Antients, by reason that the Countries wherein they liv'd, and made their Observations, have a very different influence upon the Bodies and Constitutions of the Inhabitants of those parts, from what ours have upon us. But, that the Variety

riety is to be ascribed to the alteration in time, rather than the difference of Climate and Dyet, I very much doubt. I think it no very absurd thing to believe, That Diseases here in *England* observed the same motions, and afflicted men with the same Symptoms which now they do, even in the time of *Hippocrates*, or *Galen*; only allowing, that some Chronical Distempers may be somewhat altered by the change of our way of living, and Dyet; which being now more delicate, soft, and luxurious, must be confessed to render our Bodies more obnoxious to Infirmities, than the wholsom plainness of our rough Ancestors. But as to Epidemical Diseases, I suppose that then, as now, they differ'd almost every Year according to the variety of the weather, and temperature of the seasons; and according to the impressions which the excess of the qualities of the several Years made upon the blood, no less in their times, than ours, their Epidemical Feavers were accompanied with odd and new Symptoms. I know well, the *French Disease* is since come in upon us from *America*; but, that there is no body now free from a spice of it, and that it bears a great share in all Distempers, I have so much respect for my Countrey, and Mankind, as to think, That
no

no man but *M. N.* will assert, who (I suppose) measures every mans body by his own; and like an Ictericall man, sees all Objects yellow, because his own eyes are of that colour.

As to his instance in Agues, which, he sayes, give the greatest baffle to *Physitians*; I suppose those baffled persons, to be men of his Rank, and Ability in *Physick*. For I have found it by sundry Experiments to be most true, That a *Tertian* may be cured as easily and constantly as any other Disease, if a right method be observ'd, before the blood be too much depraved by ill Diet, or unreasonable *Physick*.

The Author of *Medela* could not have pitched upon a Disease more unluckily for himself, there being no Distemper which suits more exactly with the descriptions of the ancient *Physitians*, than this. As for the authority of *Sennertus* in this point, though he himself be plain, *M. N.* either through Ignorance, or want of Sincerity, has falsly render'd him; for, in that place, where he sayes, *Plurimæ Febres, quæ hic agros infestant, omnes notas februm à Græcis & Arabibus descriptas non obtinent*; it is manifest that the Particle *hic*, does not relate to time, but place, and that *Febres* is not to be Translated Agues, but Feavers in general; for

Senert. Pr.
l. 3. p. 5
S. ff. 2. c. 4.

it immediately follows, *Sunt autem Febres eae
varii generis ; quandoque enim sunt lenta &
continua. quandoque intermittentes.* Senner-
tus in this place, discourses concerning the
Feavers of Scorbutical persons, and the
degenerating of Feavers sometimes into the
Scurvy, in that part of *Germany* wherein he
liv'd : But his Design is not in the least to
prove (as any man may find who will con-
sult him) That Diseases of late in general,
(and much less Agues in particular) have
been wholly altered from their former Na-
ture, and are grown incurable by those me-
thods by which they formerly were master-
ed. As to Blood-letting, which *M. N.* so
much condemns in the Ancients, and will
not admit of in putrid Feavers ; I must tell
him, he will make foul work with his Pati-
ents, if he be so sparing of his Launcet :
For it is known to all the World, and con-
firm'd by the experience and practice of
both ancient and modern *Physitians*, That in
putrid Feavers, *Phlebotomy* is one of the
greatest and most effectual Remedies, with-
out which, the practice of *Physick* in Fea-
vers, cannot but be most lame and imper-
fect; and as to his Objection against *Avicen*,
for commanding Bleeding when the Urine
is thick and red, I know, in many cases, it
is to be justified ; but it must be ordered
by

by a more judicious *Physitian* than *M. N.* who does not at all distinguish between the times of a Disease, nor (for any thing I can perceive) know a water highly tinctur'd by a dissolution of abundance of the Sulphur which is fired in the Feaver, from the water of one who is Scorbutical, which often, without a Feaver, acquires a colour intensely red, from a large quantity of lixivat Salt. I doubt, Bleeding was untimely administred to those whom he observed to grow so much worse after it, either in the state, or declining of the Disease, or when the mass of blood was low and poor, and the body cachectical; in which cases, *Galenists* themselves forbid Bleeding. If he consult the Learned Doctor *Willis*, he will find him tell him, *That at the beginning of a continual putrid Feaver, care is to be taken, that the Feaver be immediately extinguished, that a stop should be given to the farther inflaming of the fired parts of the Sulphur. To which end, Blood-letting is in the first place most conduicable; for by this means the Blood is eventilated, and the Sulphureous Particles which were got into a body, and ready to burst into a flame, are dispersed, as when a new Hay-reek is preserv'd from burning, which is just ready to be on fire, by flinging the Hay abroad, and laying it open to the Air.*

Willis de
Feb. c. 11.

willis de
F. b. c. 4.

And in intermittent Feavers, he tells us, That by bleeding, the blood is cool'd, and reduced to its natural temper; and he instances in a young man of a cholerick Constitution, in a *Tertian*, whom, being not able to bear Vomiting, he cured by Bleeding. But of this Subject enough at present, since I intend in another place to handle it more fully.

But now, *Risum teneatis, amici?* Enter *M. N.* upon the Stage, Out-quacking *Scoto Mantuano* in *Ben. Johnson*; and that he may recommend himself to the shrivel'd Salad-eating Artizans, accosts them with this most elegant piece of *Mountebankry*, which (though I suppose it be to be met with, fet out for the better advantage with Teeth and Scarlet, at the corner of every street) I will take the pains to Transcribe out of his learned Writings.

Forasmuch as abundance of People grow sickly, and languish under the appearance, it may be, of a Consumption, a Gout, a Dropsie, an Ague, a slow Feaver, and sometimes an acute one; Sore-eyes, Green-sickness, and indeed of all manner of Diseases; which (when the other ordinary means have been long used in vain) have at length been relieved by an orderly use of such antivenereous Remedies as I have on purpose invented; the Nature whereof,
is

is to fight against Humors both great and small, in old or young, which have been any way touched with the venereal tincture, either through their own default, or by Sigillation of these seminal Principles which contribute towards the Being of Mankind in the Act of Generation.

— *Et a tergo nondum finitus Orestes.*
And at this rate he goes on, in commendation of his Secrets, in comparison of which,

No Indian Drug must ere be fam'd
Tobacco, Sassafras, not nam'd;
Nor yet of Guaicum one Small Stick Sir,
Nor Raymund Lullies great Elixir.

Ben. Jonaf.
Foxe.

But I will have done with his Buffoneries, and pass to discourse more seriously of the Scurvy; which Disease (without being guilty of a Heresie in *Physick*) I am very apt to believe to have been as ancient in *Britany*, and other Northern Maritim Countries, as the very first Inhabitants; and that ever since men were mortal, and subject to Diseases, the Climate and temperature of the Air in these Countries, did dispose the blood and humors of those who breath'd it to that Dyscrasie, or ill temper which we now call the Scurvy; and so rendered it a malady Endemial to the people.

That this Disease is the same with the Stomocace and Scelotyrbe of *Pliny*, seems very evident; for that Author tells us, That the cure of that Distemper was performed by an Herb called *Britannica*, which they of *Frisia*, where the *Romans* were encamped, shewed to the Souldiers; and, that this *Britannica* was Scurvy-grass, and named either from the *Brittains* teaching the *German*s the use of it, or from the quantity which grew in *Brittany*, is most probable. For Mr. *Cambden* in his *Britannia*, observes it to grow very plentifully in the Marshes of *Kent*, and affirms, That it was the opinion of Physicians, that that was the *Britannica* of *Pliny*.

Cambd.
Brit. Kent.

Sennert. pr.
l. 3. p. 5.
S. A. 2.

Sennertus is positively of the Opinion, That the Stomacace, and Scelotyrbe of *Pliny*, are the very Scurvy; for that even in the same place where *Cesar* then incamped, that Disease is now very frequent, and most easily contracted and propagated; and he doubts very much whether *Pliny* did rightly assign the cause of those Symptoms which afflicted the *Roman* Souldiers in their Mouths and Legs, to be the drinking of the water, since that now in *Germany* there is no Fountain known to be indued with such a power or property; and that *Pliny* himself writes, That they did not presently, but af-

ter two Years, fall into this Disease; which more probably was caused by their ill Diet, and the natural disposition and contagion of the place, with which the *Romans* being altogether unacquainted, knew not what else to assign for the cause of this Distemper, except the drinking of the water; the impurity of which, I confess, might possibly concur in corrupting of the Blood, and producing the Scurvy.

That the Scurvy was anciētly Endemial to the more Northern parts of the World, and consequently of no new upstart Original, may be farther argued from the very nature and formality of that Disease, and the common general cause which produces it. That the Scurvy consists in the Bloods being degenerated from its spirituous Balsamick, and volatilized condition, into a salt, sharp, and austere Liquor, wherein the volatil Spirits are either evaporated, or depressed; and the gross Salts either being disjoin'd from the rest of the Principles, run together, and are said to be in the state of Fluidity, or continuing only their Combination with the earthy parts of the Blood, render it wholly fixed and unactive; in which states it becomes either sharp and eager, like Vineger, or dead and flat, like decayed Drinks; is the Opinion of Sen-

*Sennert. 27.
l. 3. c. 3.
Sect. 2. c. 2.*

Willis de
Feb. c. 1.

nertus, and Dr. Willis, those Learned Authors.

And indeed I do not find that any Hypothesis gives so satisfactory an account of the Phænomena and Symptoms of that Disease, as this by them assigned; for if we run through the affections of the animal, the vital, and the natural Faculties, from whence *Eugalenus*, and other Writers have drawn all their Diagnosticks we shall find, they may be all very naturally derived from the Saline Dyscrasie of the mass of Blood, whereby it is rendered unfit to separate the heterogeneous Particles both of the alimentary juyce, which is perpetually supplied from the stomach, and of the Air drawn in by the Lungs; which, though it furnish the Blood with a Nitre most necessary to life, yet oftentimes it comes impregnated with Atoms very destructive to the Being of Man; which if they be not seasonably exterminated, and separated by the active and volatil spirits of the Blood, in time easily corrupt, and destroy the temper and mixture of that Liquor. Hence disorderly Fermentations, Obstructions, Spontaneous Weariness, Difficulties of Breathing, Vagaries of Pains, Defects in Motion, Palpitations, Giddiness, Paralytical Affects, Spots, Scurfs, and many more Distempers reckoned

Chap. 3. The Chymical Galenist.

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ioned up in *Eugaleus*, and other Writers ; which of necessity must afflict the body of man ; when the blood is once become unfit to maintain a regular flame in the heart, and duly to supply the nervous parts with a soft juyce, and well rectified animal spirit. Wherefore I make little question, but that even in the time when *Julius Caesar* invaded this Island ; a man, who had been long sick of a *Quartan*, or tedious Feaver, especially towards the Sea-Coasts, must in time have grown Scorbutical : For in long sickness, the volatil Salt of the blood is much wasted, as appears from Mr. Boyle's Observation in his Essay of the Unsuccessfulness of Experiments, That Chymists assure him, who have occasion to distill it in great quantity) that they find a notable Disparity betwixt Urines ; that of healthy and young men abounding much more with volatil Salt, than that of sickly, and aged persons. And though in Spain, Italy, and other warm Countries, men do not, after tedious Feavers and *Quartans* (notwithstanding the volatil Salt of their blood must be allowed to be considerably wasted) usually fall into the Scurvy ; yet the Air in these Northern parts of the World, abounding with fixed Salt (to which *Gassendus* ascribes the freezing, and congealing virtue of the Wind) is apt to dispose,

Mr. Boyle's
Ph. Essayes.

32. 9.

Boyle's
-re. Essayes
32. 9.

Gassend.

Epicur.

Philos. Me.

scor.

dispose, and alter the blood into the same temper, if it be not furnished with a sufficient quantity of volatil Salt to maintain its own Liquor from too much fixation, and to subdue and volatilize those Salts of the Ambient Air, which the Lungs perpetually draws in, and mingles with the mass of blood.

For, that Respiration is necessary to life, not upon the score of cooling the blood and Heart (since then Fishes might live in water, which is colder without Air, which yet many of them cannot do) but for the drawing in of Nitre to keep afoot the fermentation of the Heart, is the Opinion of the Learned Doctor *Ent*, and other sound Philosophers. And *Fernelius* is inclinable to that Opinion, where he sayes, *Si nulla in nobis esset tenuis & spirituosus substantia, vix ulla profecto nos ad inspirandum necessitas impelleret.* Now if this be true (as is most probable) I suppose the Air in the Countries which are infested with the Scurvy, to afford a Nitre to the blood less pure and volatil, and more infected with adventitious Salts, than that which is breathed in Countries free from that Distemper. That there is this difference in Nitres, Mr. *Boyle* observes; and that the *Salt-Peter* of *East-India* is much to be preferred before that of *Europe*;

*Ent. Arol.
pro Circ.
p. 98.*

*Fernel. de
Calore in-
nat. p. 4. c. 2.*

*Mr. Boyle's
Phi. Essays.*

Europe ; and that *Barbary* Niter, before it is refin'd, abounds very much with an adventitious Salt, which tastes much like Sea-Salt. From which difference of Niters in the Air, I conclude, That the firing of the blood in the Heart, and the fermentation of it afterwards in the Vessels, may be so diversified, as to cause all the Symptoms observable in the Scurvy. It is farther to be Noted, That the chief Specificks used in the cure of this Disease, are such, which perform their effect by the volatil Salt with which they abound, and with which they impregnate the flat and languishing blood ; such are generally all things which strike the Tongue and Nose with a quick, smart, and brisk taste and smell ; which though they for the present give relief, and change the habit of the body to the better, yet do they seldom make so perfect a cure, but that upon the intermission of the use of them, the Air, by its ill Impressions, reduces in short time the blood to the Scorbutick, or Saline Dyscrasie, from which it is no longer able to defend its self, than it is inspired with the nimble, and volatil Salts of those anti-Scorbutick Remedies. The general cause then of this Endemial Disease the Scurvy, being the constitution of the Air is peculiar to the Northern parts of the World,

World, and there appearing no reason why we should believe that to be altered for the worse in our times, from what it was in former; I shall be apt to conclude, That it alwayes had the same effects upon the bodies of those men who breathed it, and that anciently, as well as in our times, it produced the Scurvy in those Bodies; which through Errors in Dyet, want of Exercise, or antecedent Diseases, it found disposed to receive it.

As to the increase of it of late in the Bills of Mortality (as that ingenious person Mr. *Grant* has observed) I suppose, since the Scurvy has been familiarly taken notice of, and discoursed by the *Physitians*, (which has not been long) the name has from them been deriv'd down to the Nurse-keepers and Searchers; and is grown so common in their mouths, that Diseases which either they understand not, or have a mind to conceal, are now often given in under the name of the Scurvy.

The *Rickets* is, I think, very rightly supposed by the Learned Doctor *Glisson*, to be a Disease wholly new, and to have had for one of its chief, its procrastick Causes, the Peace, Security, and Plenty, which the Nobility and Gentry of this Nation had long enjoyed, immediately before the first break-

breaking forth of it: From whence they had addicted themselves to a more soft, delicate, and debauched way of living; and by that means, contracted a constitution of body more effeminate, flabby, and unfirm, than their Ancestors; who, by continual Toils, Wars, Dangers, and other Manly Exercises, not only preserved their own strength of body, and generosity of mind, but also deriv'd it entire to their Children. But I do not find, that it is observed by any able *Physitian*, That the face and appearance of it, is in the least altered from that in which it discovered its self at its first eruption; neither is it entered into any stricter complication with the Pox and Scurvy, than formerly. *These being Diseases* (as Doctor Glisson himself tells us) *very little a-kin,* and only, by accident sometimes meeting in the same body. For the increase of the Consumption in the Bills of Mortality, Mr. Grant himself gives so sufficient a Reason, that we need go no farther to enquire the cause of it, nor to ascribe it to the alteration in the nature of that Disease, since he affirms, *That almost all who dye of the French Disease, are put into the Bills of Mortality, under the name of Consumption.* For upon enquiry, he sayes, he found, *That all mentioned to dye of the French Pox, were return-*

Glisson. de
Rachid. p. 80
241.

Glisson. de
Rachid.
c. 30.

ed

Grant. Bills
Mortal. &c.

ed by the Clerk of St. Giles's, and St. Martins in the Fields, dead of the Consumption; from whence he concludes, That only hated persons, and such whose very Noses were eaten off, were reported by the Searchers to have dyed of this Malady.

The Stopping of the Stomack, I can imagine to be nothing else but the Disease which Physicians call *Asthma*, or *Dyspnea*, because I find not the least mention of this very frequent Malady in the Weekly Bills; and that I observe there is nothing more usual with the Vulgar in their complaints to Physicians, than to assign those Distempers to their Stomacks, which properly belong to their Lungs.

The Rising of the Lights, is (I think) truly enough believed by M. N. to be, that frequent Symptom, which is vulgarly called *Suffocatio uterina*, or *πνιξ ὑστερική*. And I am not of Opinion, that that Suffocation is only the proper affect of Women, and that solely it is caused from the disturbance of the Womb: For I have seen some men very much troubled with a rising up in their Throats, and especially in Hypochondriacal Distempers, no less apprehensive of being choaked, than Hysterical Wo-

It is worth the taking notice of in this place, that the Author of *Medela*, who everywhere else inveighs so bitterly against the *Aristotelean* and *Galenick Philosophy*, when he pretends to give some account of the reasons and causes of these Symptoms, for want of truer apprehensions of his own, shelters himself under the very weakest, and most exploded part of that Philosophy. And flies to the *pitiful and jejune notions of Vapors raised in the Lower-belly, especially about the Spleen in the stomach, and about the Midrif, and in the Cavity of the Omentum, which must needs, whilst they continue there, hinder the free motion of the Midrif.* And, a little farther (that there may be no scruple left of his Ignorance in Anatomy) he acquaints us with the playing of the *Scorbutick malignant Vapors through the Veins and Arteries to the Lungs, and by communication thence to the heart*: Which Opinion is so contrary to the Doctrine of Circulation, that there is scarce a Butcher who is not able better to inform him; and he may learn at every Shambles (for 'tis not fit he should prophane a Theatre) that not one drop of blood enters the Lungs, before it has passed the right Ventricle of the heart.

And

And now, by reason this is a Subject very well worthy of a more accurate Disquisition, and the Account which *M. N.* has pretended to give, seems very lame and unsatisfactory, I will beg leave to digress, and offer some apprehensions which I have concerning the Hysterical Passion, and other Distempers, which seem to come very near it, and agree in many of the Symptoms and Accidents.

*A Digression concerning the
Hysterical Passion.*

THough the Disease called *Hysterica Passio*, be by almost all Authors treated of as only peculiar to Women, and proceeding only from the distemperature of the Womb; yet (as I have before observed) it may, upon grounds drawn from Reason and Experience, be very truly affirmed, That Men also are liable to most of the Symptoms of it, and that even in Women they are often caused when the Womb is not in the least concern'd in the guilt. And the reason, why this Sex is more frequently than that other, afflicted with this Malady, may very well be ascribed to their more delicate constitution, and soft texture
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of their nervous parts, whereby they become more liable to convulsive motions; and upon the vellicating and twitching of any one part endued with exquisite sense, to have Convulsions communicated to the whole nervous System from whence the whole frame of the Body is put into disorder; as we see Clocks and Watches, whose Springs and Wheels are contriv'd with too subtil and nice workmanship, are oftner in fault, than those of more plain work.

For the better understanding of the Nature of this Disease, and of the Causes from whence all the Symptoms do flow, it will not be improper to give those Descriptions of it which are delivered by Authors, and of the Accidents which in some particular persons have occur'd to my own observation. The Paroxysms, or Fits of this Disease, in some move regularly, and return at certain set-times; in others, are uncertain, and wandring. Some persons they invade in an instant; in others, they give notice and warning by certain signs, which forerun the Fit, and are a Prologue to the Tragedy. As a dulness of Spirits, Laziness, Faintness, Paleness of Face, Sadness of Countenance. The Partics press their Belly with their hands, and perceive

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something to rise up, to their apprehensions as big as a Cannon-Bullet; their Legs fail them, and tremble; they find something rise up to their Throat, ready to choke them. Then they grow drowsie, lose their understanding; some laugh, others weep; some, do both: Besides, they find a gnawing pain at the mouth of their Stomack, a loathing of Meat, a pain and Swelling of their Belly, a rumbling in their Sides under the Ribs. They have a weak Pulse, a trembling at the Heart, a pain in the Head, a redness in their Lips, Face and Eyes; which are sometimes distorted, sometimes so fast shut, that they can hardly be opened: And being now high in the Fit, they are ready to be strangled, are deprived of Voice, Sense, and Motion, except such as is Convulsive; some cry out with a despairing Voice, and presently fall down for dead; their Pulse is then very weak, and sometimes none to be felt. When the Fit is going off, their Cheeks redden, they recover their Senses; their Eyes, with a very dull and heavy Aspect, are opened; and at length, fetching deep sighs, and sometimes pouring forth showres of tears, they come to themselves. This is the Picture of that dismal Disease which most frequently afflicts poor miserable Women (though Men are

are not exempted from it.) In some, all or most of these Symptoms meet; in others, only the strangling, or danger of being choked, with some other Accidents, are observable. But generally, the Fits are so terrible, and amazing to them, who consider not the reasons of these affections, that by the Vulgar, the persons subject to them, are believed to be bewitched, or possessed by the Devil.

The ancient *Physicians* do with one consent deliver, That Seed, and menstruous Blood, corrupted in the Womb, and Genital Parts, do send forth malignant Vapors, which with violence carry up the Womb against the Diaphragm, and Organs of Respiration, and thereby suddenly stop the motion of the Heart and Lungs; and from this impetuous motion of the Womb, they suppose to be caus'd that sense of a Globe rising upward in the Belly. But they who have so much insight in Anatomy, as to know, That the Womb is immoveably fix'd to its place by Ligaments, and that in Virgins it is usually not much bigger than a Walnut; and do consider, that in Women with Child, the Womb presses upon the very stomach, and yet never causes these Accidents: And, that oftentimes in Dropsies of the Womb, that part is extended

something to rise up, to their apprehensions as big as a Cannon-Bullet; their Legs fail them, and tremble; they find something rise up to their Throat, ready to choke them. Then they grow drowsie, lose their understanding; some laugh, others weep; some, do both: Besides, they find a gnawing pain at the mouth of their Stomack, a loathing of Meat, a pain and Swelling of their Belly, a rumbling in their Sides under the Ribs. They have a weak Pulse, a trembling at the Heart, a pain in the Head, a redness in their Lips, Face and Eyes; which are sometimes distorted, sometimes so fast shut, that they can hardly be opened: And being now high in the Fit, they are ready to be strangled, are deprived of Voice, Sense, and Motion, except such as is Convulsive; some cry out with a despairing Voice, and presently fall down for dead; their Pulse is then very weak, and sometimes none to be felt. When the Fit is going off, their Cheeks redden, they recover their Senses; their Eyes, with a very dull and heavy Aspect, are opened; and at length, fetching deep sighs, and sometimes pouring forth showres of tears, they come to themselves. This is the Picture of that dismal Disease which most frequently afflicts poor miserable Women (though Men
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to a vast bigness, and is full of putrid Humors ; and yet none of these Suffocations, or other Accidents, are caused. They (I say) who consider this, cannot allow, that these stupendious Symptoms can be produced by that cause.

*Highm. de
Pissior. &
Hysterica.*

The Learned Doctor *Highmore* in his Exercitation upon the Hysterical Passion, having examined all the *Hypotheses* invented either by the ancient or modern *Physitians*, to solve the *Phænomena* of this Distemper, and finding them all very insufficient to give a satisfactory Account, delivers most ingeniously his own Opinion, and supposes all the Symptoms to be caused by an overstuffing of the Ventricles of the Heart, and Vessels of the Lungs, with thin, servous, and fermenting blood ; which does so distend, and fill them, that the Lungs are thereby rendred unfit to comply with the motion of the Diaphragm, and Chest, and the Heart disabled to discharge its self by its Pulses, of the burden which oppresses it, though it attempts to rescue its self by more frequent pulsations : and from hence necessarily to follow, first, A difficulty of Breathing, and then a Suffocation ; which that Nature may avoid, she calls to her Succor, the Animal Faculty, which (lest she perish together with the Vital) pours forth

forth the whole force and strength of her spirits, though in so much disorder, that by their confused Sallies, those irregular motions are caused in the Body which men call Convulsive. This is the account (according to my best apprehension of his meaning) of the descriptive Definition which that excellent person gives of this Disease. And I am so much of his Opinion, as to believe, That very often a Dyscrasie, or Distemper of the Blood, and probably of the Serum or Whey of it, is one cause of this Distemper. But I beg his pardon, if I am apt to believe, That even then, when these Fits are caused from a Serous Dyscrasie in the Blood, they are rather to be attributed to the Impurities and sharp Salts which are either cast off upon the Brain, and from thence distributed through the Nerves into remote parts of the Body; or else upon some of the Bowels, where those pungent juices pricking and vellicating the extremities of the Nerves, cause the original and whole system to participate of their disorders; than to the Bloods stuffing and distending the Vessels of the Lungs, and Heart. For besides, that there are many Women Cachectical and Hydropical, whose Vessels are filled with little else but waterish Blood and Whey, who are not-

withstanding very free from Fits of the Mother; It is often observed, that Women of a ruddy Complexion, who have a brisk and lively heat in their Blood, and that rich with spirits, which purges its self every Month in its constant periods, are often miserably afflicted with Hysterical Paroxysms: For they are not seldom such as have an excellent good appetite, and digest their meat well; whose Lungs are not flabby, weak, or disposed to a Consumption; and whose Blood, when it is let out of their Veins, and settled, is observed to be thick, and full of Fibers; all which are Qualifications quite contrary to those which are required by Dr. *Higmore's* Hypothesis, (if I mistake him not) to render a person liable to Hysterical Passions.

Moreover (in my Opinion) crude and waterish Blood is altogether unfit to be set so impetuously on fire, as to cause so extravagant a Fermentation in the Ventricles of the Heart, that by overstretching the Lungs, they should be unable to disburden themselves of the Blood. For we find, that Cachectical and Hydropical persons, and Maids in the Green-Sickness, are troubled with a shortness of Breath upon Exercise, and walking up steep Places or Stairs, which undoubtedly is caused, for that the Blood
of

of such persons being thin and waterish, and wanting its due proportion of the sulphureous and inflammable part; does not afford a sufficient quantity of vital Oyl to the Lamp of the Heart; and therefore when upon exercise and motion, there is a greater quantity of Blood than ordinarily sent into the Heart, that being not well rarified, and fired in the right Ventricle, passes not so swiftly through the Lungs to the left, as it ought, to make room for that which is to succeed; so that at the same time the Lungs and Heart are overburdened, upon which a difficulty of Breathing, & a beating and throbbing at the Heart must necessarily ensue. Besides, in Feavers, where the Blood is most of all rarified, and fermented (except the matter of the Disease be cast upon the Brain) Hysterical Symptoms do not constantly happen; and yet the sulphureous part of the Blood fired, is much more apt to fill and distend the Chambers of the Heart, and Vessels of the Lungs, than the Whey.

It is farther observable, That Women, who have their Courses too frequently, and vent by the Womb overgreat quantities of Blood, are often troubled with Hysterical Fits; and some even after so large Hemorrhages, that there has been more

River. Ob.
cent. 1. ob.
94.

Reason to believe, they had not Blood enough left to maintain the Circulation, than to suspect the Lungs and Heart could be oppressed with it. Riverius has an Observation of a Maid, who (having her menstruous Flux in so violent a manner, that in the space of two hours she voided four or five Pints of Blood) fell into so terrible a Fit of the Mother, that she lay without speech as one dead, and yet had her eyes open, and shewed with her hand that she was strangled.

Glisson. de
Richid.
P. 19.

These, and other Reasons, seem to argue, That the *Animal Constitution* (I use Dr. Glisson's word) is primarily affected in this Disease, and the heart and lungs only secondarily, and by consent; and that the disorders of the vital parts, as well as the rest of Hysterical Symptoms, are meerly convulsive motions. Consonant to this, Dr. Willis in his most admirable Treatise of the Brain & Nerves, gives an excellent account how the Lungs come to be affected in Hysterical and Hypochondriacal Paroxysms, in these words.

Si quando nervos pneumonicos à causa morbosica affectiones Spasmodicæ affligerint, ita ut motibus inordinatis convulsi arterias & venas quas amplectuntur, perperam constringant aut huc illuc contrahant; propterea Sanguis

Sanguis aut pulmonibus nimis exulans eos flaccescere ac in se concidere facit, adeo ut aerem copiose attrahentes, ipsum haud facile reddant; vel quod crebrius usu venit, Sanguis intra pulmones detentus, ibidemque stagnans eos infertit ac diu rigidos tenet, ut aerem inspirare nequeant. Utriusque generis Symptomata in affectibus Hystericis, & quibusdam Hypochondriacis passim contingunt. Quinimo interdum ipsa Bronchia pari nervorum Spasmo convelluntur, ac in motu suo praepe diuntur, quo minus debito modo aerem inspirent, expirentque prout in paroxysmis Asthmaticis cernitur cujusmodi affectus saepenumero a nervorum vitio sine insita quavis pulmonum dyscrasia producuntur.

willis Nervorum Descrip. c. 24.

In the same Chapter he acquaints us, how the affections and motions of the Heart are produced by the influence of the Animal Spirits, through the intercostal and eighth pair of Nerves; and that the tremblings and disorderly vibrations of the Heart, which evidently differ from its pulsifick motions, are caused from the violent Succussions and Convulsions of the Pericardium.

To evince the necessity of the influx of the Animal Spirits to maintain the motion of the Heart, he tells us, That he had often made this Experiment in Dogs when they were alive.

alive. Having opened the Skin about the Neck, he tyed both the Trunks of the Par Vagum with very strict Ligatures; upon which, the Dog seem'd to be stunn'd, lost wholly his voyce, and fell into Convulsions about the Hypochondria, with a great trembling at his heart. But these presently ceasing, he lay as if he were just a dying, without any life or vigor in his countenance, scarce being able to move any part, and refusing all meat that was offered him. Notwithstanding, he dyed not in several dayes till he was quite starv'd, though the Nerves were both cut asunder. The Heart receiving by the recurrent and intercostal Nerves, a sufficient, though weak supply of Spirits to maintain a faint motion, and a Circulation enough to keep the Dog alive.

Having hitherto prov'd, That the Animal Constitution is primarily affected in the Hysterical Passion, it will follow, that there may be assigned as many causes of this Distemper, as we can imagine able either notably to vellicate the Extremities of the Nerves, & affect them so strongly, as to draw into consent the whole System, or else to put the Animal Spirits in the Brain into so great a confusion and disorder, as to disturb their constant and regular irradiation and influx into the bowels, and other parts of the body: Or, whatever causes are apt to render

der the nervous Joyce, which is the Vehicle of the Spirits, sharp and pungent, and apt to irritate and provoke the Fibers in its passage.

The Ancients reckon the Seed retained in the genital parts in too great a quantity, as one of the principal causes of these affections; and that we may the better understand how that is able to put the Animal Spirits and Nerves into disorderly motions, it will not be impertinent to consider the nature of it. The Seed or Geniture seems to consist of Salt Sulphur, and a great quantity of Spirit; for these active principles are only able to perform that wonderful work of Generation, in that secret shop of Nature the Womb. It may be proved by sundry Experiments, That a nitro-sulphureous spirit is the Author of all Generations, as well in Vegetables, as Animals. The Account which that eminently learned person D. Ent gives of the production of things, in his Apology for the Circulation against Parisanus, is very much to this purpose.

Terra & Aqua (sayes he) materies sunt rerum naturalium, in quibus seu uteris diversa rerum gignendarum semina, sive spiritus, delitescunt, quorum virtutes in salibus potissimum nidulantur. Per calorem solis humores tenues variis salibus imprægnati ascendunt Ent. Apol.

cendant, aeremque nostratem constituunt, den-
 nuoque in elementa unde euecta erant rela-
 buntur: Quinetiam interdum maiore copia
 roris forma decidunt, cuius opera Terra &
 Aqua spontaneos suos foetus producant. Indi-
 cium huius rei est, quod si aqua calida terram
 persuderis (namque eo modo sal omnis edu-
 citur) nihil postea in ea nascitur, neque ver-
 miculi, neque lapilli, nec gramen, imo nec
 semina quidem ei commissa, licet soli hac ter-
 ra exponatur, & aqua stillatitia irroretur:
 nihil inquam inde progignitur, donec per ali-
 quod temporis spatium sub dio posita, novo
 rore, siue sale vivifico impragnetur. Hic ros
 super arborum frondes incidens varia insecto-
 rum genera producit. Hic in mediano plan-
 tarum cortice potissimum stabulatur, per quem
 planta vivunt, unde debito tempore frondes,
 flores, & fructus producantur, ac propterea illo
 ipso in pertinacibus viscerum obstructionibus
 reserandis utimur. In quo si Prosserus recte
 computavit inquit vigecuplo plus huius salis,
 quam in ulla alia arboris parte reperitur.
 Imo sunt qui affirmant ab ipsis plantarum sa-
 libus terra commissis easdem denno plantas re-
 pullulare. Hinc constat, idem etiam animali-
 bus contingere, hominumque semen de natura
 salis participare quod probatur his rati-
 onibus.

1. Semen diutius retentum, & copia ad-
 auctum

audum titillationem excitat: id autem salis contingere in pruriginē videre est.

2. Semen in humido liquefcit quod fali proprium est.

3. Acidum olet.

4. Hinc fit ut nimio coitu capilli qui tali fale abundant defluant: & Offa eo impragnata in lue Venerea afficiantur.

The Sum of what this learned person afferts, is, That nitro-sulphureous Spirits, or Salts, are, as it were, the Soul of the World, and the Authors and Causes of all Productions and Generations. These Seeds, Spirits, or vivifick Salts, are certainly much more exactly elaborated and exalted in Animals, than Vegetables, and in those which are more perfect than in the less; for that there are Instruments and Organs purposely ordained and contrived by Nature, which are to give a perfection to the Seminalities of Men, and other Creatures, which are endued with a regular shape, proportionable to the nobleness and exactness of the Fa-
brick, which they are to design and build, when they are employed for the continu-
ance of the kind in the act of Generation.

Therefore, as Dr. Willis does very well demonstrate, The Arteries do after the same manner insill into the Testicles a genital juyce for the making of Seed, as they do into the

Willis D-
script. Nerv.

Brain

Brain an animal Liquor for the production of Spirits, which in the Veins and Arteries (contrived for that cause with infinite turnings and windings) is made more subtil and volatil, and the Parts are in their passages exactly mixed; the more gross and terrestrial are separated, and at length the refined and exalted Liquor is sent into the inward substance and body of the Stones, where being farther elaborated and mingled with the volatil Salt (the innate ferment of those parts) it becomes Seed. It is farther to be considered, That when the Ferment implanted in the genital parts, comes to be sufficiently ripened, and by a long digestion has arrived to its perfection, Men and Women attain to that state and maturity which we call in Latin *Pubertas*. At that time the genital parts grow hot, and being filled with seminal Spirits, discharge themselves continually of some part of them, by the veins into the mass of blood, from whence the nervous Juyce and Spirits become tinged and impregnated with the seminal Ferments; so that about that time the blood grows high and luxuriant, and in Women being hardly contained within its own limits, is emptied every Month by a periodical turgescency. There is at this time a great alteration wrought in the manners and

and behaviour; and the rank, acid scents, vented by the Emunctories of the Nerves, do declare, That the Juyce which passes in them, is inspired with the geniture. Now if for want of seasonable Evacuation by Coition, this genital spirit does not only too much abound in the blood, but also, in its frequent Returns by the Arteries to the Testicles, is overdigested, and too highly elaborated (which is called by *Physicians* contracting a malignant quality) it renders the spirits upon all slight occasions. (especially in Women, whose Nerves and Brains are weak) liable to sudden and impetuous Fermentations ; so that upon the Orgasms of these unruly Seminalities, and a forcible disunion of the saline part from the sulphureous, those Explosions and Convulsions are caused in the *Abdomen*, and other parts ; which are so violent for the most part , and impetuous, that they cannot well be imagined to be produced by any other cause, than such as must at least equal the force of Gunpowder.

And we find how apt these spirits are to take fire in the blood, and nervous juyce , by the causes which in Women, liable to the Fits, induce a Paroxysm. For passions of the mind, violent exercise, sweet smells or any slight cause, whereby the blood and spirits

*This Notion
I acknowledge
to Dr.
Willis.*

rits are chased, presently brings on a Fit : that the abounding of the seminal spirits in the body, may be one cause of the Fits of the Mother (and certainly it is the most violent) is confirm'd by the observation of *Riolan*, who affirms, *That upon the Dissection of Hysterical Virgins, he has found their Testicles bigger than his Fist, filled with seminal matter.*

But certainly, as the Seed is one cause of this Disease, so is it oftentimes produced from other causes, and oftentimes when the genital parts are not in fault: Nay, it is often obvious to be observed, That a defect in the uterine Ferment, as in *Cachectical Green-sickness Maids*, has occasioned them to be much afflicted with *Hysterical Passions*. For the blood in such Women, for want of the seminal tincture which ought at a due time to enliven and inspire it, remains crude & slimy, and does not as it ought, cleanse its self by its menstrual Purgations, by which means many Impurities are cast upon the Brain, with which the nervous juyce becomes to be much vitiated, and to prove an improper Vehicle for the spirits ; and by exciting preternatural Fermentations in the nervous parts to cause *Hysterical Paroxysms*, which happen for the most part periodically, and at set-times, when the body

body expects its lunar benefits; for at such times the nervous juice, as well as the Blood, being saturated with Feculencies, indeavours by fermentation to depurate it self; by which, the Animal Spirits are put into disorder, and the nerves drawn into convulsive motions.

These two, The Seed and Menstruous blood retained, are the onely causes of Hysterical fits, which are assigned, by almost all Authours, except *Riverius*, who adds, that other humours likewise retained in the womb and genital parts have likewise their shares in producing those Symptoms; which he concludes from observing, That many Old Women, who are neither troubled with Seed or menstruous blood, are often very obnoxious to these distempers. To which, he adds a Notion of his own, which, he says, is of very great moment, and seems very agreeable to this Hypothesis, That Hysterical Passions are not onely excited by vapours, raised from the forementioned substances, But the very humours, which find no vent by the passages of the womb (which is a kind of Sink to the body) through a suppression of the Menstrues, or the Whites, are sent back to the upper parts, and infect them with an ill quality, which they have contracted by too long a stay in the vessels

Riv. pr. l.
15 c. 6.

fels of the womb by a contagion from the Seed and menstruous blood.

To these Causes, which are delivered by Writers, may all such be added as Authors of this Distemper, which are apt, by vellicating the extremitie's of the nerves, to cause Convulsions. Such are sharp juices in the womb, spleen, and other bowels, schirrous tumours, not onely in the womb, but in the stomach, mesentery breast, and other parts. The same accidents will wounds in the nerves produce; and in Women subject to Fits; even gentle Vomits which work by causing a convulsive motion in the stomach) will put them into Hysterical Paroxysms, as I observed lately in a Lady my patient, to whom being above fifty years of age, upon very urgent indications I gave onely ʒiii 's of infusion of *Crocus metalorum*, and because I knew her to be Hysterically, and had formerly observed in others Paroxysms induced by Vomits, before she tooke it, I ordered an Hysterical plaister to her Navel. The Vomit wrought very gently with her, but as soon as the working was over, after her last Vomit she fell into a fit of the Muther.

It might be expected, that I should now give an account of every particular Symptom, which belongs to this disease, but not, design-

designing to make an exact Treatise of it in this place, I must recommend to the Reader, the consideration of these causes, which I have mentioned, or any other which he can imagine powerful enough to make disorders in the animal Spirits, and convulsions in the nervous parts, and as for the particular consents, & correspondencies of one part with another, how distempers begun in one part manifest themselves in another far remote. I refer him to Dr. Willis his most learned Treatise of the *Brain and Nerves*, and to the Schemes wick he will there meet with. For without such an Anatomical consideration of those parts, it is impossible to receive any tollerable satisfaction, concerning the affections of them. And I will onely in this place, give him an account of the most notorious Symptom, the rising of the Murther (from which all the rest receive their denomination) in Dr. Willis his own words: *Pleriq; abdominis, plexus praesertim vero infimus & affinis ejus mesenterii maximas. in passionibus Hystericis vulgo dictis, saepenumero afficiuntur. Porro illud Symptoma in Paroxysmis ejusmodi valde frequens, nempe quo velut globus ab imo ventre efferri ac circa umbilicum impetuose exilire percipitur, ut perinde uteri ascensus perhibeatur. Dico id nihil aliud esse quam immanes horum plexu-*

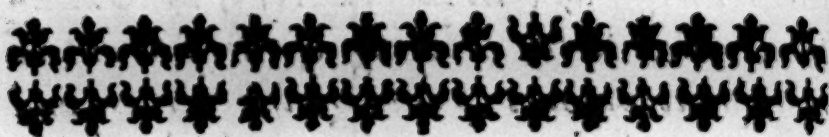
Willis.
N. r. v. or. de-
scrip. c. 27.

um spasmos. Sape quidem in fœminis, & interdum etiam in viris novi tum affectio convulsiva inladeret primo molem in hypogastrio assurgere visam, dein circa medium abdomen intumescenciam ita immanem successisse, ut viri fortis manibus, ut ut validissime intentis haud comprimi aut inhiberi potuerit. Proculdubio admirandi hujus affectus causa est quod intra paris intercostalis nervos Spiritus animales influi, quoties ataxias, sive motus Convulsivos ineunt, primo (uti plerumque assolet) circa nervi extremitates, nempe in plexu abdominis infimo effervesce ac velut explodi incipiant, quæ illorum affectio, cum sursum perreptans, ad plexum M. senterii maximum deferatur adeo ut Spiritus ejus incolæ pari inordinatione corripantur nihil mirum est, ista medii abdominis intumescencia, ac velut materia cujusdam nitrosulphureæ explosio, ciatur.

In this and the place before quoted out of him, we see that Dr. Willis (whose sense M. N. (that he may honour himself by quoting of him) every where either ignorantly or willfully mistakes) ascribes. Hysterical hypochondriacal, and asthmatical risings and stoppings to Convulsions of the nerves and not to vitious and malignant vapours raised in the lower belly especially about the spleen in the stomach, and about the

the Midriffe and in the cavity of the Omentum. Nor to the Playing of the Scorbutick malignant vapours up through the veines, and arteries to the lungs, and by communication to the heart, which accompt may be well enough tollerated in Sennertus, but is by no means to be indur'd in M. N. who pretends so much to the new discoveries in Physick, and undertakes to demolish and overthrow all the old Writers. And yet agrees with them in their grossest mistakes.

And now having clearly proved that the Diseases of this present age are not so much changed and of another nature, as to render the old way of Physick uselesse. I will next proceed to examine whither the causes assigned by M. N. are sufficient to produce that great alteration both in Nature and art, which he imagines to be made.



CHAP. III.

THE Causes of the alteration of Diseases from their ancient state and condition, the Author of *Medela* assigns to be the *Pox* and *Scurvey*, which by carnal contact, by ill cures, by accidental contagion, by hæreditary propagation and by lactation, he supposes, so to have overspread the whole face of Mankind as that by them there is introduced an universal alteration and depravation of Nature, from whence he would inferr, that the rules Methods and Medicines, which were used by the Ancients, in the curing of their diseases are become altogether uselesse in ours.

As to carnal contact, hæreditary propagation, and lactation. I very readily grant that the *Pox* and *scurvy* may by those ways be communicated from the diseased persons to the sound. But as to accidental Contagion, as he calls it) upon which point lies the main stress of his Arguments for the universality of those diseases) by which

which they, like the Plague, infect at a distance, and by steams & emanations, taint the whole stock of Mankind, it is a meer whim of his own, and so far from being a solid truth, that it is point blank contrary to the daily experience of the world and the authority and observations of the most learned and faithful Writers, and the very Nature and Essence of those diseases.

When *M. N.* comes to handle the point of the propagation of the Pox and Scurvy by ill cures; it is pleasant to observe, that he does not onely fling dirt upon the learned Physicians, for letting blood and using the purgers of the Shops; but (that he may ingross all the sinners of the Town) he likewise falls foul upon his own Fraternity, the men of his own Rank and Ability in Physick the poor Quacks and Mountebanks; who pretend to the Cure of the Venereal disease, and to make room for his own very injuriously tears down their bills from the Posts.

On my word he will make no ill trade of it, if he can perswade the whole Nation, that they have the *French-Pox*, and then that nobody but himself can cure it. But, passing by his immodest and uncleanly discourse, as not designing to make my self acceptable to Stews, and Brothel-houses,

I will fall upon the other more important and less offensive disquisition concerning *Phlebotomy*.

And as to that he tells us he could (forsooth) willingly write a *Treatise*, (and a learned one it would be) touching the mischiefs done by bleeding in these Northern parts of the world in most Diseases, as well as *Agues and Fevers*, because of the mixture of the *Scorbut*, and his main reason is, because, that if it be true (since the liver is turn'd out of the Office of *Sanguification*) *Sanguis sanguificat blood makes blood of the chyle, and doth it ad modum tincturae.* &c. Now I will grant to him that the liver is very justly discharged of the office of *sanguification*, as I will anon more largely prove, and that in some sense the blood may be said to make blood, and yet upon this score is it impossible for that great remedy of blood letting established by the Experience and Authority of the whole learned world in the least to grow out of esteem.

First then I will tell him, what *Dr. Harvey* sayes upon this point. But while I affirm (sayes that Oracle) the soul to reside first and principally in the blood. I would not have any man hastily to conclude from hence, that all blood letting is dangerous or hurtful, or believe, with the vulgar, that as much

Harv. de
Gen. An.
Ex. 51.

Chap. 2. The Chymical Galenist.

73

much blood, so much life is taken away, because Holy Writ placeth the life in the blood. For daily experience shews that letting Blood is a safe cure for several diseases, and the chiefest of universal remedies; because the default or superfluity of the blood is the Seminary of most distempers; and a seasonable Evacuation of it, doth oftentimes men from most desperate maladies and even death it self: for look how much blood is according to Art taken away, so many years are added to the age. Nature her self was our tutor here, whom Physitians transcribe. For she of her own accord doth many times vanquish the most mortal infirmities by a plentiful and critical evacuation either by the nose, hæmorrhoids, or by menstruous purgations. And therefore Young-people, who feed high, and live idely, unlesse about the eighteenth or twentieth year of their age (at which time the stock of Blood increases, together with the Bulk of their bodies) be disburdened of the load and oppression of their blood, either by a spontaneous release at the nose, or inferior parts, or by breathing a vein, they are dangerously set upon by *Fevours, Small pox, Head-aches*, and other more grievous Distempers, and Symptoms. Alluding to which, the Farriers do begin almost all cures of

Riv. Prax.
Med. l. 16.
c. 3.

of beasts with letting blood. This is the opinion of that great Secretary of Nature. Nor is it onely his sense, but the best Authors do affirm, and *Riverius* for one, that in the disease called the *Rheumatism* (which seldome is without a high tincture of the *Scorbute*) blood must be taken away for ten or twelve dayes together, every day till the pain vanishes, and the strength seems to fail, which does not by loss of blood in this disease. And in this case I can appeal to my own experience: For, being called to a person of Quality in *August*, 1665. in *Gloucestershire* (in counsell with that Judicious, and Learned Physitian Dr. *Filding* of *Gloucester*) who then lay miserably tormented with a *Rheumatism*, being free from pain in no part of his Body, nor having the use of any of his Limbs, though he were a Person, who these many years has been highly *Scorbutical*, we drew from him at least the quantity of 70 $\frac{3}{4}$ of blood, before we could free him from pain, and restore him to his health.

Plat. Obs.
l. 1, p. 80.

Platerus makes mention of a Mad-woman, who was cured by being let blood in several Veins, seventy times in one Week. I might run through all other diseases, and shew the necessity of bleeding, which may happen in most of them: but because M.
N's.

N's. main Argument, is founded upon Sanguification, I will endeavour to explain, how the Chyle is turn'd into Blood, and in what parts of the body chiefly this work is effected : So that by discovering the true way of Sanguification, his Argument may appear to be ill grounded.

That the Liver is not the Shop, wherein the Blood is made, is evident to any man who will examin the generation of Animals ; for, he shall perceive the Heart beat, and Blood perfectly coloured, before there appear any rudiments of the Liver ; so that the Liver is made after the Blood, and, as it were, sticks upon little slender threds; and the *Parenchyma* of it, evidently grows out of the mouths of the Arteries, through which matter is supplied to the formation of it ; so that the *Parenchyma* of it seems to be nothing else, but congealed blood. Again, the Chyle never goes to the Liver, but empties it self into the *Subclavial* Veins, and goes streight away to the right Ventricle of the Heart.

Now, the use and business of the Liver, is without doubt, that which is assigned by the eminently learned D. *Glisson*, that it is made to receive the blood, which runs to it by the *Porta*, to separate the Choler from it, and

Harv: de
Gen. Ex 18,
p. 63. Ex.
50. p. 153,
Ex. 59. p.
107.

Glisson
Anat. Hep.
c. 41.

and then being freed from that, to deliver it to the *Cava*. The very Make and Structure of that Bowel, argues as much: as also the distribution of the Vessels to every part of the *Parenchyma*: for the *Porta* equally dispenses the blood into all parts of it, and the small *Capillary* threads of the *Porus Biliarius*, are every where dispersed, and ready to receive the choler, which is brought along mingled with the blood into every part. And in like manner, the small branches of the *Vena Cava*, are every where interwoven and at hand, to carry away the blood, when cleansed and freed from the bilious part of it. Now the choler is separated from the blood by a certain kind of Percolation. For, the blood issuing out from the *Porta*, into the *Parenchyma* or fleshy parts of the Liver, finds that substance full of pores or little spaces of divers shapes and figures, and proportionable to the shape, size, and figuration of the *Particles* or *Atoms* of blood and choler, whereof those which are suitable to the shape of the parts of choler, open into the small pipes of the *Porus biliarius*; those which are answerable to the shape of the *Atoms* of blood, convey it into the little mouths of the *Cava*. These pores or little holes easily let pass those parts of mater which
are

correspondent to their shape, but refuse all of another Figures as we see water will dissolve common salt, and imbibe it so long, till all the spaces which agree with the shape of it, be fill'd, and then will receive no more; but yet afterwards will receive sugar or salts of another Figure, so long, till they have fill'd the spaces suitable to their shape.

The separation of choler in the Liver may not unfitly be explain'd, by that which is made in Sieves, whereof some are made only to sever Chaff and dust, some for Fetches, some for Barley, others for Oats; which, according to the shape of the holes let passe or refuse, this or the other Grain.

Having thus explain'd the Anatomy of the Liver, I will proceed to discourse of the Nature of Blood it self, and the principal Engine which is employed in the making of it; and to that end, let me trace the passage of the Chyle, that we may the better find when and where it is turn'd to blood. It is well known to every man, who has but in any measure inquired into Physick and Anatomy, that as soon as the meat is dissolv'd by the *menstruum* of the stomach, it is pressed down into the guts, and out of them all the way almost to the
very

Willis Description. Nerv.

very *Arus*, the thinner and finer part is forced into the *Lacteals*, out of which it is delivered into the common Channel of the chyle, and being mingled with a whey, which comes out of the *Lymphaticks*, it enters the *Subclavials*, out of which it runs mingled with the blood into the great Trunk of the *Vena Cava*. Out of which, passing into the right Ventricle of the heart, by the motion of that Engin, through the *Pulmonary Arteries*, it is flung into the Lungs; out of which, having there separated some phlegmatick, or crude excrements, and being impregnated with the nitre of the air, which is drawn in by respiration (and being in the Lungs, as with a Churn, or Chocolate-mill, more exactly mingled with the blood) it hastens by the *Pulmonary Vein*, to the left Ventricle of the heart, out of which by the *Aorta*, it is sent to all the parts of the body.

Thus far the Chyle may be easily traced, and truly, I know not why it may not, having passed the last deflagration in the heart, be justly called Blood. I will not in this place bring the distinction of the Schools upon the Stage, which distinguishes that Liquor which runs in the Veins and Arteries into Three humours, and Blood, as being now out of doors with all ingenious men,

men, and being no otherwise to be applied than as some portion of that Liquor has more often, other more seldome, or hardly yet at all, passed through the heart, and there been fired. But I, in general, term all those juices, Blood, which run in the Veins and Arteries, and have the form colour, and consistence, of that liquor which is vulgarly called so, though it consists (as certainly all blood does) of parts very *heterogeneous*: and I think the Chyle it self, which comes very white and dilute into the *Subclavials*, when it has undergone the fermentation in the left Ventricle of the heart, may without impropriety be justly termed blood. For, though I do acknowledge, that this juice, before it arrive to perfection, does undergo several fermentations, and separations in divers parts of the body: as, for example, in the Liver, the choler is separated in the Kidneys, the whey in the habit of the body several excrements are refused, which can probably be no other wise blown off than by transpiration. And though a fermentation in the *Spleen*, *Testicles*, *Uterus*, and other parts, be requisite to give a vigour, life, and height to the blood: yet I take the Heart to be the chief Shop, where it is first made, and where it receives
it's

it's life, motion, and tincture.

In the heart (as to our purpose) three things are chiefly to be considered. 1. The Ventricks or Chambers of it : 2. The Parenchyma or Walls : and 3. The Mechanick Spirits, (as *Severinus Danus* calls them) which lodge and reside in the inscrutable recesses of the Parenchyma. These Spirits may be justly called the Artificers, or Labourers of blood and life : to these we owe all Action, Heat, Motion, Colour, and what not : These, first working in the *punctum saliens* or *vesicula pulsans*, with a wonderful skill and unexpressable art draw the lines & proportions of an animal, shape, all the Springs, wheels, pullies, and whatever Engine is necessary for life ; and after they have drawn the whole Fabrick in the small with an innate prudence, and indefatigable industry, they extend every line to the due Proportion, and build up the Fabrick according to the design'd dimensions, and afterwards are no less careful in keeping the body in continual Repair, than they were at first in Building of it.

In the next place, the Ventricks or Chambers of the heart, being inclosed with their Parenchyma, as with strong Walls, do at the very first sight, from their mechanical Structure, sufficiently appear

near to us, to be made for Laboratories for the Blood. Hogeland well observes, 7 hat *Hog. p. 81.*
 upon the Bloods rushing into the Heart, the like boyling and rarefaction is caused, as when Spirit of Nitre is poured upon butter of Antimony. Des Cartes, and the best Philosophers and Physitians are much of the same Opinion. This Fermentation seems to be caused by the Mechanical Spirits, or Seminal Salts; or, if you please, Ferment of the Heart, which ferments with the active principles of the Blood and Chyle, and produces heat, flame, motion, and a change of colour, the ordinary effects of Fermentation, as it is well known to Chymists.

In the act of Generation, the Seed, or resolv'd Salt being cast by the Male into the Womb, in the Conception frames the Heart; and by the heat either of incubation, or the cherishing warmth of the Womb, is excited, and gently falls a fermenting; and at length, boyling more violently, breaks into a flame, which is perpetually kept a foot by a new supply of Chyle, the old stock of Blood after some Deflagrations being left poor and unfit to maintain the Fire. That the Chyle in this Deflagration receives its Tincture, or Scarlet-die, is more than probable. The Learned Doctor Ent, deduces the variety of Colours from

Ent. Apol.
p. 141.

the diversity of Seminal Salts, and certainly with very good Reason : For, since Colour is nothing else, than a certain perception of a motion or stroak of Light reflected from the Surface of a Body, and striking upon the *tunica retina* of the Eye ; and, that the *Superficies* of every Body is made up of numberless Particles of matter, variously disposed among themselves, it follows, That if upon the Fermentation of Bodies, the site and position of parts be so changed and transposed, that they return not again to the same order wherein they were first placed, the *Superficies* must be altered, and then the reflection, as also the stroak of light must be different ; and, except it prove diaphanous, the Body must appear of a new colour.

Thus we see Water much agitated at Mills, and Cataracts looks white. The blew tincture of Violets having some drops of Spirit of Vitriol poured on it, turns Purple ; and, immediately by adding some few drops of Spirit of Harts-horn, the Purple colour is turn'd into Green. Doctor Willis, and other Learned Authors, have many pleasant instances of the alteration of colours, by mingling Liquors, which ferment with one and the other. That the Chyle is turn'd red in the Heart, after this manner,

Willis de
Ferment.
cap. 11.

manner, I am very apt to believe; and that the innate Salt or Ferment of the Heart by fermenting with the Chyle, which abounds with volatil Salt and Sulphur, produces this admirable tincture.

I have observ'd, as yet, but two wayes of producing a red colour in Bodies, either by the action of heat upon them, or else by the addition of Salts; by heat, white and pale colours are often changed into red, and that especially in Bodies which are not very fluid, and which admit of only a slow and leisurely Fermentation. Thus Quinces by long boyling, contract a Redness; Fruit by baking in an Oven, grows Redder, than Raw; and Bricks, by Heat, acquire a red colour. Nay, the Learned Doctor Glisson affirms, *That in the hot Months of Summer, Blood is often found in those Animals whom we account bloodless, as Oysters, and the like, by reason of the heat which excites the fermenting Salts which lay intangled, and, as it were, asleep, in the more slimy and unactive parts of those Animals; and, possibly, the reason why Snails, and such other Creatures, are not endued with Blood, is, because the Ferment of their Heart lies idle all the Winter.*

Glisson.
Anat. Hep.

The other way of producing a red colour, is by addition of a salt *Menstruum*.

Dr. Ent.

Berig. Cinc.
Un. p. 9.

Thus Juleps are colour'd red with Spirit of Vitriol, Infusions of Senna with Oyl of Tartar: And *Berigardus* tells us, He had a Chymical liquor, into which, if he put but a little piece of a certain Salt, the Liquor would turn from being white and cold, to be so red and hot, that he could not endure to hold the Bottle. After the same manner, the milky juyce of the Chyle is most probably turned into Blood; for meeting with the Salt, or Ferment of the Heart, it is turned from white to red, and boils no less than the *Chymists* Liquor.

Having thus endeavoured to explain the manner of Sanguification, and having deduced it chiefly from the firing of the Chyle in the Heart, I do not find, but that upon this Hypothesis (agrecable to the experience of the World) even in many Scorbutick Affects, Phlebotomy may be most necessary; but especially (as in some persons) where the Scorbutick Ferment is (as I may call it) a Stum to the Blood, as I have found it in many, especially in a Woman in *Berkshire* above 50 years of Age, who, every Fortnight, or three Weeks, has her Courses in so violent and large a manner, that except the Flux be by seasonable bleeding often moderated, she is continually in danger of bleeding to death. Nay,
even

even in other cases of the Scurvy, where by the aduſtneſs and ſharpneſs of the Blood, the Chyle is perpetually corrupted and depraved; by ſeaſonable bleeding, the Blood is ventilated and enabled (there being more room for the maſs to ferment in) to caſt off many of its ſæculent Salts, by Urine, and Tranſpiration; and the Chyle (the vitious fermentation of Scorbutick Salts, being, by breathing a vein, ſomewhat allay- ed) comes more ſincere, and leſs perverted to the heart.

I come in the next place to his Exceptions againſt Purgation in the Scurvy, By the *Pills, Electuaries, Powders and Infuſions, reputed Claſſical and Authentick*; which (he tells us) work by offensive irritation of Nature; rather than an amicable Cloſe with her. What his amicable Cloſe with Nature is, I underſtand not except he has explain'd himſelf in his cleanly Diſcourſe of the *French Diſeaſe*. But as to Purgation, any man who ſhall ſeriouſly conſider how Medicines purgative perform their effects, ſhall find all thoſe, which are properly call'd ſo, work either by a vellication of the Fibres of the Guts and Bowels; or by exciting a Fermentation in the Blood, or both wayes. Thoſe which work by irritating of the Fibres, cauſe the Guts to thruſt down their Excrements, and

*M. J. M. d.
P. 88.*

by contracting themselves to expell them forth of the Body. Those Purgatives which by the Lactials (and, possibly, by the ends of the Meseraicks) pierce into the mass of Blood, work their effect by fermenting the juyces of the Body, and stimulating the fibrous parts, in the most inward recesses of the Bowels, by which often the Morbifick matter is exterminated into the Guts, as Barm in the fermentation of Liquors is separated, and forced out of the Barrel. Now as the Medicins differ in their Nature, so, I suppose, may a different Fermentation be excited in the Blood, and likewise a different Excrement or Barm be vented, and wrought off; upon which, I suppose, the whole business of elective Purgation to depend; and, whatever his Specifics be, which he so much magnifies, they must necessarily perform their business by one or other of these ways, except (without Canting) he can demonstrate a more reasonable.

In his Discourse of Contagion, and of the Infection, of the French Disease and Scurvy, at a distance, the Author of *Medela* (as everywhere else) discovers as much want of Civility as Philosophy, and treats the learned *Fernelius*, and the most acute and judicious Philosopher *Sennertus*, with

more respect than he does the Colledge
 of London, and Universities; and after he
 has made bold with several pieces of this
 Learned Author to patch up a Chapter, he
 gives him the Lye, tells him, *That he's gross,*
and that it matters not, what his, or other
Physitians phansie is, touching a particular
Disease. And all this is, because that these
 Learned men do not, contrary to their ob-
 servation and experience, allow those Dis-
 eases to be communicable at a distance, and
 without corporal contact; in which, though
 their own experience and observation be of
 abundantly more weight, than his ill digest-
 ed ratiocinations; yet will it not be imper-
 tinent to shew, that though these Diseases
 are very deservedly accounted Contagious,
 or Infectious; and that Contagion is cau-
 sed by the insinuating of the Emanations of
 smal bodies from the morbifick matter into
 the Blood and Juyces of the persons in-
 fected, and that from all Bodies do conti-
 nually flow streams of Atoms; yet does it
 not in the least follow, that whatever infects
 or poysons by immediate Contact; will al-
 so work the same effect at a distance. Thus
 we see the poyson of a mad Dog infects
 not by the *Effluvia* from his Body; but ei-
 ther by bite, the touch of the fume, or his
 blood. The *Tarantula* communicates venom

P. 12S.
 130.

by his bite, the Scorpion by the sting, and the like may be said of almost all poysons; nay, some require, as in Bees, Wasps, Hornets, and the like, that the venom be conveyed by the sting through the very skin into the blood, without which it may be questioned, whether barely thrown upon the skin, it would produce the effects of poyson: And we evidently find, that these Creatures poyson not by any effluxes from them; but when the venom is closely applied to the Body, and by Contact communicated to the Blood.

*Crat. Epist.
Med. l. 2.*

Consonant to this, is an instance in an Epistle of *Crato* to *Thomas Jordanus*, of a kind of Plague in *Moravia*, which only infected those persons who were bled with Cupping-glasses, and that it seized upon them in that place where the skin was scarified, and the Cupping-glass fastned, and that way the venom got into the whole mass of Blood, and insinuated it self into the nervous parts. And discoursing of the reason of this Disease, he makes mention of a relation of the Emperor *Ferdinand*, concerning a poyson used in *Spain*, made of the juice of White Hellebore, with which the Huntsmen of *Spain* use to poyson their Arrows, and with them kill Deer, and other wild Beasts. *In the beginning of Summer,*

mer, sayes the Author, they who prepare this
poysen, press out the juice from the whole
Plant, expose it to the heat of the Sun till it
be prepar'd, and then pour it into a Bulls-horn,
in which they keep it; but they are exceedingly
careful, that it come not near any place
wh'ere there is the smell of Quinces, for then
presently it loses all its virtue of poysening. This
poysen may without harm be tasted by the
Tongue, but if the least drop of it be commu-
nicated to the Blood, it proves most pernicious.
And he adds, That if any one be but pricked
with a Needle infected with this juyce, he
would dye within a very few hours; and that
the Deer wounded with the Arrows dipped in
this poysen, first seem to be in a maze, and
lose their sight, then run round; then fall
down, and dye within half an hour at the far-
thest. But that which seems strange, is, that
the flesh of the Deer thus killed, should be eaten
without any kind of harm, and that only the
part where the wound was made, was flung
away. He adds farther, That an Ass, whose
back was galled with carrying Burdens, having
a Deer laid cross his back, which was killed
with one of these Arrows, some of the blood
from the wound by chance dropping upon the
place which was galled, fell down dead before he
brought the Deer to the journies end. He tells
us likewise, That the Emp'ror Rudolphus
the

the Second, having shot a Deer with one of those Arrows in one of his Horns, which ran away, as though he ayled nothing, did, notwithstanding, some hours after, as he came from Hunting, find him dead.

From this, and the like Instances, I suppose it may be very reasonably argued, That from the Doctrine of Atoms, it does not necessarily follow, that whatever Venom or Disease will infect the Blood, by a gross and corporeal Contact or Attrition, will likewise perform the same effects at a distance, by subtle Effluxes, or Emanations of small Bodies or Atoms. For though we see in the Plague, and some other malignant Diseases, that the Venom, like Lightning, quickly pierces the Pores, and insinuates it self into the mass of Blood, and that often at a considerable distance from the Body, out of which are sent those deadly and pernicious steams: yet we find this mentioned Spanish poyson, though of more deadly and quick force to the destruction of life, when once mingled with the Blood, does not as much as penetrate the Pores of the Skin (possibly, by reason of the disproportion of Figures of the Atoms) nor, (though tasted by the Tongue, a part very sensible of all impressions) communicate to the Nerves or Veins any venomous or mortal Ferment.

Now

Chap. 3. *The Chymical Galenist.*

91

Now to apply this something nearer to the *American Disease*, and the *Scurvy*, (which *M. N.* has most bountifully bestowed upon all Mankind :) Though it be sufficient, that the most curious, and diligent observers of those Diseases, have unanimously agreed, that they are only contracted by gross and corporeal Contact; yet, I think something may be argued from the History and Cure of the Pox, and Nature of the *Scurvy*, which may serve to rescue Mankind from the apprehensions of being universally tainted.

As to the Pox, or *American Disease*; the Original and Growth, as also what Observations the World had then made of it, is very well delivered in the History of *Guicciardin*, *Methinks it cannot be out of purpose* (says his Translator) *to leave to Memory and Tradition in what sort began the Disease which the French-men call, the Evil of Naples, and the Italians name the Rotch, or, more commonly, the Disease of France. It happened as an Infection to the French-men, whilst they were at Naples; and by them, in their return from that War, was dispersed and spread through all Italy. This Disease, either altogether new, or at least unknown to that Age in our Hemisphere, otherwise than in the most extream and furthest parts, was for cer-*

Guicc. l. 2.

tain

tain Tears so horrible, that it well deserved mention as a most grievous Calamity: For it appeared alwayes either in vile Botches, or Buttons, which oftentimes proved Ulcers incurable; or else they tormented the whole Body with Pain and Aches in the Joynts and Sinews: And the Physitians having no experience in Maladies of that Nature, and therefore ignorant in the Remedies proper and natural, applied oftentimes Cures directly resisting, and contrary; which inflamed the Infection to greater Rage, even to the killing of many bodies of all Ages and Sexes; and many became deformed with them, and subject to almost Torments perpetual; yea, the most part, such as seemed to be delivered of them, returned eftsone in short time to the same misery. But after the course of many Years, (either the influence above being appeased, which bred them so horrible, and raging; or by long experience, their proper Remedies and Cures being found out) the Disease began to be less malicious, changing it self into divers kinds of Maladies, differing from the first Calamity; whereof truly the Regions and People of our Times might justly complain, if it happened unto them without their proper disorder; seeing it is well approved by all those that have diligently studied and observed the Properties of that Evil, that either never, or
very

very rarely, it hapneth to any, otherwayes than by Contagious Whoredom. The French think it reasonable to acquit them of the Ignominie, for that it is known since, that such a Disease was transported out of Spain to Naples, and yet not proper or natural to that Nation; but brought thither from the Isles, which (in those Seasons) began to be known to our Regions by the Navigation of Christopher Columbus a Genoway; in which Isles (by the favour of Nature) are Remedies ready to cure that Ill, by drinking only of the juyce of a wood, (most singular for many other worthy Properties) which growing plentifully in those places, is a Remedy, no less easie, than absolute, and assured to the Inhabitants there.

By this Account of Guicciardin, it is evident, That by the most exact Observers of that Disease, both in its birth, increase, and spreading in *Italy*, 'twas found by experience, that it was either never, or rarely, any other way contracted, than by Whoredom, and Coition with infected persons.

And indeed, that the venom of the Venereous Disease, is founded in a dull, heavy, and unactive matter, and not in a Ferment of so swift a motion, as to infect at a distance, appears very much from the way of its Cure; for whereas the Plague, which
swiftly

swiftly infects, is (before it has too much poysoned and corrupted the Blood and Juyces) by Sudorificks, easily expelled at the ends of the Arteries. The Venereous Disease on the other side, is of so sluggish parts, that there is no separating of the Morbifick matter from the mass of Blood, and nervous Liquor, without dreining the Body of almost all its Juyces, either by Sweating, or Salivation. I have observ'd in the Cure of some persons tainted with this Disease, That as long as they have indulg'd to themselves the drinking of Beer, though in a small quantity, no great benefit has ensued upon the most effectual Remedies; but when once they have strictly confin'd themselves to the use of appropriate Dyet-drinks, in the course of their other Remedies, in the space of three or four dayes, all ill Accidents have vanished. It is not therefore likely, that a Disease which sticks so stubbornly in the Blood and Juyces of the Body, should flie as swift, as light, all over the World, and leave not so much as a poor Thrasher or Milk-maid free from its Contagion.

In the next place, The Nature or Formality of the Scurvy, consisting in the Bloods being overcharged with fixed or fluid Salts, renders that Disease very unfit to be communicated

municated at a distance. For whatever Disease acts upon, or infects a Body at a distance, must be of active, nimble and subtil parts, easily flying out of the Pores of one Body, and with the like facility insinuating themselves into the mouths of another Bodie's veins; and of so swift motion, that the Contagious Corpuscles, when they are rambling in the Atmosphere, shall receive little or no alteration, either in their motions, from the occurrence of other Bodies; or in their Figure, from the attrition or beating of other Particles of matter which they meet in their way (for upon these affections of matter, all virtues and operations of one Body upon another do depend.)

Now the essence of the Scurvy being radicated in a fixation of the Salts of the Blood, it seems very improbable, That such fix'd Bodies, which cannot by the force of fire be carried up to the top of an Alembick, should be proper Messengers to communicate Infection at a distance. Besides, Saline Particles being too gross to be put into those violent motions which are required in infectious Ferments, though they may by Sweat, or insensible Transpiration, issue out of the diseased Body; yet if they Travel far in the Air, they will either in
their

their way combine with other Particles of matter, and so lose their Properties (as we see the Salts of a *Menstruum* unite themselves to Powder of Coral, and other ter-
staceous Bodies) or else in their Journey by the meeting and jostling with other Atoms, have their motions and figures so altered, that they would wholly lose their former operations and virtues.

Now from the Instances which I have given of sundry poysonous Bodies, which, (though they must be allowed to be of a very active venom, and constantly to send forth streams, or *Effluvia* of Atoms) do, notwithstanding, never poyson at a distance. And of some which infect not by immediate Contact with the Skin, and never but where they are mingled with the Blood; from the Accompt which *Guicciardin* gives of the Observations which the World made of the *French Pox*, in its Original and Growth; And from the Arguments drawn from the Cure of that Disease: As also from the Nature and Formality of the Scurvy, it very clearly appears, That *Fernelius* and *Sennertus* are in the right, when (though they allow the Pox and Scurvy to be Contagious Diseases) they deny them to infect (like the Plague) at a distance. And that *M. N.* who upon supposition of the
accidental

accidental Contagion or Infection at a distance of these Maladies, would infer an alteration of the Nature of all Diseases from their ancient state and condition, and consequently render useless and void the Rules, Methods, and Medicins of the Ancients; has not with any good Arguments prov'd the Point, which he has with much Confidence undertaken.

But this is not a new Discovery. It is a well known Truth, that the Nature of all Diseases is not the same, but is altered by the different Circumstances of the Body, and the different Seasons of the Year. This is a well known Truth, and is not a new Discovery.

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CHAP. IV.

The Scurvy and French Malady may be complicated with other Diseases, is not (I suppose) denied by any able Physitian. But (by *M. N*'s leave) it does not from thence necessarily follow, That the Nature and Essence of all Diseases abstractly considered, is wholly altered. For Diseases in Bodies free from those Distempers (as many Thousands there are untainted) are still the same that they were formerly; and where a Dropsie or Gowt, or any other Distemper, meets with a Pocky Body, the ancient Disease by the Combination is not altered from its former condition, though there be an addition of a new Malady. For his supposition of the Pox and Scurvy, being Contagious at a distance, and that by the continued Succession, Multiplication, and Concentration of many millions of Contagious Ferments, which have been floating and flying up and down, they must needs be Coessentially tinctured, and Combined with the very Blood, Humors,

mors, Spirits, and, by consequence, universally complicated more or less with all manner of Diseases, is (as I have demonstrated in the foregoing Chapter) a phansie so extravagant, that it is not reconcileable either to Experience or Reason.

As to his Quotation out of *Sennertus*, it makes nothing for him: that Author in that place, saying no more than what every Physician agrees with him in; to wit, That Fevers complicated with the Pox, are more difficultly cur'd, than Simple ones; which is no more then what holds true as to all other Diseases, where there is a Complication, though the Pox do not make one. For certainly many Diseases in one Body are not so easily encountered as one, and oftentimes the Indications contradicting one the other, the same Methods and Medicins which are proper for the quelling and extinguishing one of the Distempers, do at the same time strengthen and increase the other.

The Authority of his Friend *Helmont*, (who affirms, That from a Complication of the Pestilence with the French Ferment, the Plague is now more frequent than in former Ages; that it seizeth us upon the least occasion, cruelly pursueth, and more easily spreads it self, because of its being associated with this new venom or poyson) does not much weigh

with me in this Point, as to which I can oppose History and Experience against him. For I do not find, but that the Records of former Ages, deliver Descriptions of as frequent, dreadful, and depopulating Plagues, as any have hapned in our times. Let him consult *Kircher, De Peste* (his admir'd Author) and he will find at the latter end of his Book, a long Catalogue of Plagues which infested the World before ever the French Disease came out of *America* ; and that they then, as now they usually, afflicted Armies, and Camps, in which malignant Epidemical Diseases are usually bred; not by any pocky Ferment, but by the Necessities, ill Dyet, and Nastiness, which usually accompany the number, and motions of those vast Bodies.

For instance, After the Destruction of *Troy*, upon the occasion of that War, there sprang up a Plague which over-ran all *Greece*. That there was a great Plague which destroyed *Xerxes* his Army, when he rais'd it to fall into *Greece*, appears out of *Herodotus*, and by the Letters sent from the Governor of the *Hellespont* to *Hippocrates*. The Plague of *Athens* (which, as described by *Thucydides*, and *Lucretius*, seems to have been a more dismal Pestilence, than has ever hapned since to any one People) is
said

said to have arisen upon the War between the Athenians and Lacedemonians. Again, Livy describes a horrible Plague which destroyed the Roman Army when Marcellus besieged Syracuse. And it is Recorded, that Anno Domini, 252. there was so universal a Pestilence, that no Province in the World was free from the same. These Instances sufficiently confute Helmont, whom I will dismiss with Mr. Boyle's Censure of him in his Preface introductory to his Sceptical Chymist; of whose Ratiocinations (says that Learned Gentleman) not only some seem very extravagant, but even the rest are not wont to be as considerable as his Experiments.

In the next place, M. N. tells us, That the French Spirit, called Lues Venerea, haunts not only the inward parts of Men, but the outward also; appearing in the form of Ulcers, hard Bumps in the Flesh, inflamed Tumors, purulent Apostemes; as also renders Wounds hard to be cur'd, insomuch, that the best Chirurgions do complain, with admiration, That of late, even the slighter Wounds will hardly yield to the usual Remedies, so that there is need of a new foundation for Chirurgery, as well as Physick. And the better to prove this, he acquaints us, That in the Year 1661. he himself had a hot fiery Impetigo,

Me. Med.
p. 166.

which ran through his Beard round like a Red Half-Moon, from one Ear to the other; and after all manner of Unguents, Waters, Lotions, &c. used for Twelve Months in vain, he devis'd a Scorbutick Liquor, and infus'd in it a Mercurial Powder; which only by wetting the part therewith slightly with the top of his Finger twice a day, took it instantly away.

But to what purpose is this Story of the Beard and Ears, since it proves nothing, but that the French Malady was got very near his Nose, and that his Ears (which he has so often forfeited) are still upon his Head?

I know well, that Bodies infected with the French Disease, do usually break out in Bumps, Ulcers, Sores and Apostemes, which do not yield to ordinary Remedies, and only to such as do specifically respect the poyson of that Distemper. But the question in Dispute, is, Whether all sound Bodies which never have contracted any Venereal venom by gross and corporeal Contact, are notwithstanding so infected by the wandring Steams or Atoms of the Pox, that as much as a Cut-finger, or Broken-pate, cannot now adays be cured, without the assistance of Antivenereal Remedies; and, as to this Point, *M. N.* has not in the least

least prov'd it, or, by his Beard, shew'd himself to be a Philosopher.

I come now to the Scurvy, which I willingly grant may be often complicated with other Diseases; and indeed it must be confessed, that most Fevers which invade English Bodies towards the declination, when the deflagration of the Blood is over, and the Mass is left impoverished of its Spirit, and richer part, do leave the Blood in almost a necessary tendency and disposition to the Scurvy: And therefore judicious Physitians very usually, after the Crisis is over, have recourse to Antiscorbutical Remedies, as the Salts of Plants, the acid Spirits of Minerals, Preparations of Steel, Juices and Extracts of Vegetables, and the like; by which, the languishing Ferments of the Bowels are reviv'd, and the Spirits of the Blood quickned, and restored; and the mixture of the Chyle with the old stock of Blood, the better and more orderly performed. But to make the Pocky and Scorbutick Ferment in all Diseases, as general a Refuge and Sanctuary for Ignorance, as the Devil, and Occult qualities, among the vulgar renderers of causes, is very unworthy of a Philosopher, and will at length so much debauch that most significant term of Ferment, that it will bring it into discredit

with enquiring men, who cannot permit themselves to be satisfied with words, except something be represented by them. For in good earnest, I do not see how *M. N.* has better explained the Nature of the Disease, which he has treated of by the word Ferment, and other terms insignificant, as he uses them; than if he had fled to the *Asylum Ignorantia*, Occult qualities. For there is not one question you can ask him in Physick concerning the cause of any Disease or Symptom, but he is presently ready to answer, That it flows from a Combination with a Pocky and Scorbutick Ferment; A very compendious way indeed, of being a Philosopher; but no whit more satisfactory in Physick, than, *Bellarmino*, *Thou lye*; in answering all the difficulties and objections in Divinity.

CHAP. V.

THe Third Point from whence *M, N.* inferrs, That all Diseases are altered from their ancient state and condition, is (forsooth) Vermination, or breeding of Worms; and he pretends, That in these dayes they are more frequently appearing in all manner of Fevers, and other Diseases, than in former time; and his Reason is, Because by the intermixture of the Pocky and Scorbutick Ferments, Humors are more vitiated, and a more poysonous, putredinous disposition or corruption is introduced into mens Bodies, than was wont to be in elder time. But that this is no new thing, that it is not more frequent in Diseases than formerly, or happens upon any score of the Pox or Scurvy, the Authority of the Ancients, the enquiry into the reason of the production of these Animals, and the observation of their Generation throughout all the Families of Nature, will evidently discover.

First then, as to the Authority of the Ancients, *Hippocrates, Galen*, and other Writers, do not only treat of three sorts of Worms which are usually generated in the

the Guts, but they have likewise some cases of Worms, which in these days rarely have occur'd to observation. For Example, *Hippocrates* treats of Worms being generated in Children whilst they are in the Womb, which is seldom taken notice of by Modern Writers.

*Plut. 8.
Symp.*

Plutarch gives an Account of a young man at *Athens*, who voided Worms mingled with his Seed.

*Alsarav.
Cap. de
Tussi.*

Alsaravius in his Chapter of the Cough, treats of Animals generated in the Lungs, as one cause of it. And, without doubt, they may often be the cause of the Consumption, and Ulcers of that part, though I have not met with any Modern Writer who takes notice of it, except the Learned *Muffet*, who quotes a Story out of *Hieronymus Gabucinus*, of a Lady, Who spit up a Lump of Phlegm in the middle of which there was a Worm. The same thing hapned, not long since, to a learned Friend of mine, who affirm'd to me, That having an untoward Cough, he began to be very suspicious of his Lungs, and (being himself a Physitian) to use those Remedies which he judged most fitting. And one day observing diligently his Spittle, he observ'd a Red Spot to move in the midst of a Clot of it; which, when he had disengag'd from the slimy Phlegm which

encom-

Chap. 5. The Ehymental Gallies.

encompassed it, he discovered to be a long Red Worm with many Feet: After this, he Coughed up another of the same kind, and then grew very well, and has since continued free from his Cough.

- There was a Disease of Worms amongst the Ancients (though in their Times and Countries, the Scurvy and Pox were not stirring) which is seldom to be met with in our Age; it was called by the Grecians, *Drancucula*, and by the Arabians, the *Vena Crivilis*, or *Medena*. I have met only with two Modern Authors who treat of it. The one is *Muffet*, who writes, That in India, and the Countries beyond Ægypt, a certain kind of Worms is bred in the Arms and Legs, and other musculous parts of the Body, which are endued with motion, and commonly called *Dracontia*. The other is, *Petrus Monavius*, in a Letter to *Hieronimus Mercurialis*, in the Fifth Book of *Crato's* Epistles set out by *Scholzius*, who relates, That there was a Disease in the place where he liv'd very frequent amongst Children, which, in their Language, they call *Mittiser*. The Children afflicted with it, pin'd and wasted away without any manifest cause. The way of curing them, was by rubbing the Back all over with the Crums, or Pith of Wheaten Bread, or the Flower of it tempered with Honey; and then the

Muffet In-
sect. 1. 2.
c. 20.

the heads of some things like Worms, here and there appeared, which being cut off with a Razor, the Children presently grew well, and recovered. Some (sayes he) will have this *Takes* to be the same with the *Drancucula* of the Grecians, or the *Vena Civilis*, or *Medena* of the Arabians; but, if I am not mistaken (he continues) it comes nearer to the Disease in Kine, or the Worms bred under the Skin, which *Nicolaus Florentinus* makes mention of.

*Aristot. 5.
Histor. Ani-
mal. c. 32.*

Aristotle in his History of Animals, makes mention of a small Animal generated under the Skin, which he calls *ἀκρίδιον*, which is the same with those little Creatures which are call'd *Syrones*, *ἀπὸ τοῦ σῦρος ἐκ τῆς* quia traxim sub cute repunt: they are a sort of Mites, which the English call *Wheale-Worms*, like to those which are bred in Cheese, and old Wax, which like Moles, dig their way under the Skin, and cause a very troublesom and importunate itching. They are sometimes (as *Masset* observes) bred under the Coats of the Eye; and, he sayes, some Women were very skilful in picking them out with a Needle: And that *John Arden*, a learned English Chirurgeon, has written, That the Eyes are certainly cured, by washing them with sublimated Wine.

This

This very ancient Disease observ'd by Aristotle, hapned in a very great height. (in Muffets own time) to the Lady Penraddock, Who being very apprehensive of a Consumption of her Lungs, fell to the Drinking of Goats Milk in very large quantities, by which means, her whole Body became miserably afflicted with swarms of Mites, insomuch, that she (having for some time liv'd (without any manner of sleep) in a most restless and painful condition, being intolerably tormented in her Eyes, Lips, Gums, Soles of her Feet, Head, Nose, and every other part of her Body; her Disease growing upon her, and her misery increasing, and all her flesh being, as it were, devoured by these Creatures, in spite of all Remedies, which were in vain used by the Physicians) at length ended her miserable life. The same Author adds, That it was very observable, that by how much the more often, and diligently, the Mites were digged out of her Skin with her Womens Needles, the increase of their swarms was so much the greater; and that when they had devoured her flesh, they appeared of a more considerable bigness than at first.

Muffet In-
sect. l. 2. c.
24.

I have observ'd in Berkshire, in the Months of July and August, a little Animal no bigger than the Mite in a Cheese, of an Orange-Tawny Colour, which very
much

much vexes the Skin with a troublesome itching, the Countrey-people call it a *Harvest-Louse*: when it first begins to dig its way into the Skin (which is perceived by the itching of the part) it is easily picked out with a Needle; but if upon the first itching the part be rubb'd, the little Animal shelters it self deep under the Skin, and by undermining the place, and digging or eating its way, causes an itching, and immediately a Pimple to rise. I suppose, that this Creature (though it be like the *Acari* of *Aristotle*, or the *Syrones*) is not the same, because I observe, that if it be digged out with a Needle, no Blister at all is rais'd; and therefore rather think, that this Animal is generated in the Air, or Corn at that time of the Year; whereas it is observed, that the *Syrones*, and the *tinæa* are bred out of putrified *Serum* collected in a Pimple; and that they are sustained and fed by the same, and that this being dried away, they suddenly dye.

From these observations of *Plutarch*, *Alfaravius*, and *Aristotle*, of the Production of Insects in mens Bodies; it is most evident, That the intermixture of the Pocky and Scorbutick Ferments, have nothing to do in the generating of Worms, since in Ages and Places when and where those Distempers

pers were never known, as frequent and strange cases of Worms, as any which have hapned in our times, have been observed. The truth of this will farther appear, if we consider, that not only in humane, but likewise in all sorts of other Bodies, and in all kinds of Creatures, which are not in the least subject to any alterations from the force and infection of those Diseases, the like generations of Animals do continually happen. For not only in Animals and Vegetables (every one of which breeds its peculiar Insect) but in Metals, Stones, Fire and Snow, Worms are ingendred. *Musset* affirms upon his own knowledg, and the authority of *Pen- sium*, That though nothing be bitterer than Gall, or Agarick, nothing saltier than the Sea, nothing lowerer than Vinegar, nothing hotter than Fire, or colder than Snow, yet it is most certain, That Worms are bred out of all these.

Musset. In- sect. c. 18. l. 2.

As to Insects, being bred in other Animals besides Man, every Farrier, Huntsman, Shepherd, Faulconer, and Butcher, can furnish us with innumerable Observations.

I will instance in some few which I have met with in Authors.

Doctor

Dr Wharton
de Gland.
c. 23.

Muffet In-
sect. c. 30.

Doctor Wharton in his Book *De Glandulis*, and before him, Muffet observes, That under the Horns of Does, Sheep, and Goats, there is a mucous kind of matter like a Gelly, out of which in April a great many Worms are produced, which coming away by the Nostrils and Palat, are turn'd into a flesh Flie. Sheep which dye of the Rott, have in their Livers Worms like Box Leaves.

Plat.ob. l. 3.
p. 616.

Platerus tells us, That upon Dissection of a Youth, he found his Guts full of long Worms, and those Worms full of lesser ones.

It is observ'd, that the long sort of Beetles have all of them a long Worm in their Belly, near three times as long as themselves.

Bartholinus in the second Century of his Epistles, the 56 Epistle, gives an account of the Dissection of a Dog, which had in the inside of his *Oesophagus*, several hard Swellings, out of which, when they were opened, crept a great number of Worms; in the inside of the *Oesophagus*, were very many little Holes belonging to each Swelling, through which (says he) it is very probable, that the Worms us'd to go down into the stomach, and return back again.

Not only in almost all sorts of Animals, but in Metals and Stones (as I have before intimated) Insects may be generated.

Muffet

Adaffer observes, That Millers, who pick their grinding stones to make them ruffier, when they are grown too smooth with grinding, do often find Worms in the stones: And he tells us, that *Plinius* himself told him, that he found a live Toad in the Center of a huge stone, which he divided asunder with a Saw; and (he sayes) the same thing happened in the Quarry of one Mr. *W. Gave* in *Liecestershire*. *Neque sane video* (sayes that learned Author) *cur magis in animalibus lapides, quam in lapidibus animalia nasci queant: atque ut nobis metallicos spiritus facile tribuamus, ita illis animales concedere: (salva virtutis lege) non timeo. Habent enim illi inquisitiles, & tacitos meatus, nervos, venas, & sinus: quibus alienum humorem, aliena semina, & peregrinos spiritus vel attrahunt, vel saltem vi illatos admittunt.*

And indeed no wonder, since *animarum plena sunt omnia*, since the whole Creation is full of life and soul, if in all bodies whatsoever, which undergo either a quick or slow fermentation, Worms, Insects, & Animals be continually produced. But in humane bodies, whose Juices and Blood are subject to disorderly and morbid sick fermentations, upon dissolution of the *Crafsis*, and Temperature of those Liquors,

a generation of Insects must of necessity frequently ensue. For although whilst a man is in health, and a due temperament of the vital, animal, and natural Constitutions is maintain'd, by the power of the Spirits all heterogeneous Seeds are either kept under, and suppress'd; or else, as offensive guests, presently exterminated out of the Body; when once by Diseases the Spirits are abated, and the right tone and temper of the parts, and mixture of the Juices is debauched, those extraneous Ferments which were before kept in subjection, rebell; and (being as it were at their own dispose, and uncontrolled) effect those generations which are most sutable to the nature of their Seminalities.

From this cause it proceeds, That oftentimes putrid and malignant Fevers are accompanied with Worms, which are more commonly the Effects, than Causes of those Distempers; and are not produced by any intermixture of a Pocky and Scorbutick Ferment; but from the Salts or Seminalities of those Insects, which in the disorder and confusion of the Body in Fevers, are set at liberty. For those subtil and active parts of matter getting loose (during the intestine motion, or hurlyburly of the Particles of the Blood and Liquors) from
other

other Concretions to which they were united, immediately seize upon some or other of the more gross parts, then form Organs for motion, and presently become Animals. From this Reason it is, That Children at the time of breeding their Teeth (which puts them into a feverish Distemper) are most commonly troubled with Worms, as *Hippocrates* observes in his Aphorisms, who speaking of the time of Childrens breeding Teeth, and the Diseases which they are then subject to, sayes thus, *Ipsis vero grandisculis, tonsillarum inflammationes, vertebrae in occipitio introrsum luxationes, asthma, calculi, lumbrici rotundi, ascarides, &c.* And indeed not only in the Body of man, but in almost all other Bodies in the World upon Fermentations, new Productions and Generations of Animals do usually happen. The learned Doctor *Ent*, in his Apology for the Circulation, observes, That small Flies are produced by that acid spirit of Moscatel Wine (which from them has its denomination) which evaporate in the first Ebullition. And the same Author affirms, That if a man put a small quantity of Vitriol into Wine or Water, he shall presently produce a great number of Worms. And, to this purpose, he gives an excellent account of the generation of Insects.

Tileman in
Hippoc.
Aph.

Dr. Ent.
Apol. pro
Circ. p.
247.

Insecta omnia, sayes he, (licet non semper) mutuantur ab aliis : idque vel a plantis arescentibus, ut culices ; vel e Succis fermentatis, ut muscæ e spiritu vini ; vel e rore ut eruca ; & alia aliter ; unus tamen horum generationis modus est. Spiritus nempe acidus, subtilis, volatilis, qui a leni calore vivificatur & pro subjecti natura (quæ in sale ejus fixo potissimum nidulatur) varia quoque animalia producit. Hic Spiritus concentratur, sive unum in locum colligitur, in iis quæ corde prædita sunt : In Erucis autem, vermibus, aliisque, Spiritus ille per universum corpus diffunditur, & tota cor sunt.

Here we see this learned Philosopher and Physitian, does not ascribe the generation of Worms, to the Pocky and Scorbutick Ferments ; but to Salts, from the difference of which it often comes to pass, that not only common Worms, but Insects of different species, and even Serpents have been produced in almost every part of humane Bodies ; and though one would imagine, that the Bladder of Gall, by the bitterness of the Juice which it contains, which is very forcible to destroy Worms ; and the Spleen, by the sharpness of its Liquor, should be exempted from being liable to produce those Creatures : yet even in these parts, great numbers of Worms have been

been found. *Muffet* tells us of a Disease, which at one time was very frequent in *Germany* and *Hungary*, which the *Polonians* called *Stowny Roback*, and the *Germans* *Hauptwurm*; it seized them with a violent *Hemicrania*, insomuch, that they fell into a madness or phrensie; and when they were dead upon Dissection of the Brain, they found a Worm in it. The Physicians cured this Disease with Garlick in Spirit of Wine, which certainly cured all who took it inwardly, but the rest inevitably perished. The same Author tells us, of a Student in *Cambridge*, who vented a Worm by Urine, which had a great many Feet; and that *Penninus* observ'd a great many Insects in the *Hypostasis* of the Urine of a person labouring of an Apostem of the Kidneys. He tells us likewise, that at *Francfort* he saw Worms like *Ascarides*, come out of a Womans womb.

Anno Domini 1663. I was called to a Family, in which, one after another, six or seven persons fell sick of a malignant Fever; it was of a dull, sluggish motion, and continued upon them whom it seized a Month, or Five weeks, before they recovered. One remarkable Accident which accompanied it, was a continual Cough; by which the persons affected did continually

both day and night, bring up an incredible quantity of ill-coloured and very bad scented phlegm, of which the Nurse-keeper bringing me one day a Porringer full, shew'd me in it a twist as it were of Horse-hairs, each, at least, half as long as my finger; we observed every one of them to be animated, and endued with a brisk and lively motion. It will not seem strange to any man, that these rare Productions of sundry *species* of Worms should happen in mens Bodies, if we consider, That in our Meats, Drinks, and Air, the Salts or Seminalities of sundry Insects may be conveyed into, and mingled with our Blood, which are kept under by the dominion of the Spirits, and never are permitted to exercise their own natural Operations, till in Diseases, and Disorders of the Body, they come to be set at liberty. Now the causes and reasons of the generation of Insects, as well in humane, as other Bodies, being as ancient as the Creation it self (in which the Seeds of Worms, as well as Vegetables, received their power of multiplying) there appears no reason why Worms should in these times be more frequently appearing in Fevers, and other Diseases, than in former; or that any alteration should by vermination be brought into the nature of Diseases.

Now

Chap. 5. The Chymical Galenist:

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Now, as to the Experiments of *Kircher*, though I will not question the faith of that Author in delivering them, yet I do not doubt, but in former Ages, by the help of a good *Microscope*, the same Observations might have been made.

And though I will allow, that in times of Pestilence, by the indisposition of the Air, and the rambling of pernicious steams flowing from infected Bodies, more plentiful swarms and numerous productions of insects in the Air and other Bodies, may insue than in other more healthful seasons; yet I must beg leave of *Kircher* to apprehend some difficulties in assenting to his *Hypothesis*, since the manner of infection from the plague, may be more easily made out from the figure and motion of Atoms, than by those swarms of living creatures, perpetually vented from the infected Body, which, if they poison the sound Body, by turning its Blood and Juices into the like pernicious Vermin, I see no reason, why they should not fill the whole Air with their fatal progeny, and impregnating the Winds with their Venenous Colonies, permit no man to be safe, though removed at a considerable distance from the places which are infected : Whereas, it is found true by constant Experience, (except by

some common cause, which has corrupted the whole aire, the plague be produced) The pestilence infects not at a far distance, but only within a narrow Sphere. It is very possible, that not only the Blood of men in *Feavers*, but also that of healthy persons, may sometimes be observ'd to be full of *Mites* or *Worms*, as well as *Milk* and *Vinegar*, and yet no malignant Distemper, much lesse the plague be produc'd by them. For we find, that these *Liquors*, though almost constituted of innumerable little *Animals*, are not in the least adverse to the nature of man ; and, on the contrary, the best and sharpest *Vinegar* (which most abounds with *Worms*) to be an excellent *Antidote* and preservative against the plague. Neither will *M. N.* (I must tell him) be er'e the nearer, as to the curation of *Diseases*, from this *Notion* of *Kircher* ; For even those *Remedies*, which will destroy great *Worms* in the *Stomach* and *Bowels*, are, perhaps, apt to produce little *Mites* in the *Blood* ; as, in the *Experiments* quoted out of *Dr. Ent*, the *Spirit* of *Moscatel* produces *Flies* ; and *Vitriol*, which is an admirable resister of all putrifaction, in *Water* or *Wine*, produces *Worms*.

As to the *Cure* of malignant *Feavers*, though I know well that in them *Worms* are

are often produced in the Bowels and other parts, from the putrification of the Aliment, and corruption of the Ferments of the parts, yet they are not seldome free from those accidents; and when they happen, Nature and Physicians have so ordered the matter, that generally most Medicines, which are *Alexipharmical* are likewise proper against the Worms. *Riverius*, in his *Observations*, recommends it as a thing worthy of especial notice, That *Bezoar* is of admirable virtue against VVorms, and, in another place, highly commends *Scordium*. The virtues of *Treacle*, *Mithridate*, *Diascordium*, *Harts-horn*, *Coral*, *Pearls*, *Trochisks* of *Vipers*, the acid juices of *Minerals* and *Vegetables*, the Compound waters of the Shops, as, *Aqua Scordii Composita*, *Theriaca*, *frigida Saxon*: and many other Remedies used both by the *Galenists* and *Chymists*, are sufficiently known to be of admirable Virtue and Use in both cases: So that the very same Remedies, which are of force against the malignity of the Disease, are also very prevalent in destroying VVorms.

As to the Plague (as I have before intimated) the account which the Learned *Gassendus* gives of it, seems to me abundantly more satisfactory, than what *Kircher* pretends to, by his animated *Effluxes*.

Videtur

Gassend.
c. de Calore
Subterra-
neo.

Videtur inprimis (says that Learned Author) *halitus pestilens idem posse proportionem præstare in aere quod Coagulum in lacte. Ut enim dum Corpuscula coaguli per lactis Substantiam diffusa excurrunt, ita situm partium illius commutant ut ex fluido fixum consistensque reddant* (eo modo, quo si confusam, fluxamque congeriem tessularum exquisite equalium, perflans Ventus sic emoveret, ut facies faciebus exquisite coadunaret). Sic Corpuscula halitus pestilentis insinuata in aërem intelligi possunt ea ratione invertere commutareque ejus situm ut ex salubri insaluber evadat, & qui prius egregie naturæ animalis accommodabatur, incommodus illi summopere fiat; Neque mirum sit, si qui prius animalis Corpus fovebat, continebatque in suo statu; illius partes deinceps conturbet, & immutare coactet. Deinde videri quoque potest halitus idem, sive in aere, sive in animalis corpore, quod flamma, ignisve præstare. Ut enim dum flamma aeri admota in quem Naphtha halitum pinguem, corpusculisve igneis turgentem circumfuderit, ipsum sui similem facit, creatve in eo flammam quatenus corpuscula ignis subeuntia in halitum, quæ sunt in eo sui similia hoc est ignea Corpuscula, ex ipsa halitus textura, quam discutiunt, extricant, iisque similes suos motus reddunt: Sic dum halitus pestilens aeri, Corporive animalis

animalis admonetur, intelligi potest subeuntia
 ejus corpuscula ita emovere illa, quæ in ipsis
 sui similia reperiunt, ut ea in texturam no-
 vam segregent, & motus suis similes, exitiales
 utpote, induant. Nempe ut nemo diceret
 esse in illo aere circum Naphtham fuso, ne-
 que etiam in ligno, corpuscula ulla calorifica,
 quatenus propter conditionem ejus naturæ ad
 quam spectant, indicium caloris nullum exhi-
 bent; sic nemo etiam diceret, esse in aere vi-
 so puro, animalisve habito sano, venenata ulla,
 pestiferave corpuscula; quæ esse tamen omni-
 no valeant utcumque ab eam Contexturam
 quam attinent, se minime prodant. Posse-
 mus id uberius ex Gangrena effectum, aliisque
 multis, declarare.

And indeed the Hypothesis which explains
 the way of the working of the pestilent In-
 fection upon the Air and Blood of sound
 persons, by the comparison of the Runnet's
 coagulating and fixing Milk (which is a
 very fluid Body) into Cheese (which is
 a very firm and fixed one) agrees very well
 to solve the Phenomena of that Disease; for
 it is more than probable, that the Plague
 kills by coagulating the Blood, and ren-
 dring it unfit for Circulation; for the
 Spots or Tokens seem to be nothing else
 but quarred flakes of it, which being thrust
 out at the ends of the Arteries, there stick,
 and

can no more enter into the mouths of the Veins, than Milk, when it is turned to Cheefe, can pass through a Streiner.

The Definition which *M. N.* gives us in this Chapter, of the cause of Diseases, *me* thinks, is very pretty, where he tells us *That the cause of all Diseases, is a certain Putrefaction secretly lurking among the hidden Recesses of the Humors.* This Definition, I dare swear for him, is his own, though he has the face to fasten it upon the *Unanimous Consent of Physitians.* For by its being most unintelligible Fustian, I know it to be of the same Wofe and Thred, with the rest of *Medela.*

Mr. Med.
P. 199.

CHAP. VI.

I Have in the foregoing Chapters prov'd
at large, that the *Scurvy* was a Disease,
antiently *Endemial* to the Northern parts
of the World : I have allowed a notable
disparity to be between the Blood of the
Inhabitants of the Regions, subject to this
Disease, and that of those Persons, who
breathed the Air where the Ancients liv'd,
and made their Observations upon Dis-
eases : Yet is not the difference so confide-
rable, but that a rational Physician, may
make admirable use of much of their Me-
thod and Medicines, in the curing of Dis-
eases in these Climates, and, even in such
cases, where the *Scurvy* bears a consider-
able share in the complication. And, as
to *Vermination*, I have demonstrated, that
Worms are more often the Effects than
Causes of Diseases; that their productions
in humane, and other natural Bodies, was
no less frequent and observable in former
times, than ours; and that from them, so
great a change in all Diseases, as to make
void all the Practise and Medicines of the
Ancients

Ancients can by no means be inferr'd : It is confessed, that the French *Pox*, is of late come in upon us from *America*, but *M. N.* has not in the least prov'd, that it has so tainted and infected the Stock and Nature of mankind, as to render all Diseases incident to humane Bodies incurable, by the Wayes, Methods, and Medicines, which the faithful experiences of former Ages have recommended to us as effectual. Some Maxims of *Physick* are (by *M. N.*'s. favor) as Eternal, as those of the *Spanish* Monarchy. Though (by the way) he has unluckily quoted *Balzac* for this expression, since it is very obvious to tell him, That Maxims of Monarchy and *Physick*, have been equally sacred to him: and that there was a time, when he treated Monarchs with less civil Language, than that is, which now he bestows upon the Princes of the Art of *Physick*; and he must give me leave to mind that he might as rationally inferr from that monstrous and new Disease of the late Rebellion (which was by his virulent Pamphlets diffus'd amongst the people, like the *Plague* by the infected raggs of greedy and malicious Nurse-keepers.) that all Maxims in Policy and Government, are become insignificant and unnecessary, as to conclude, from the breaking out of the *American* Disease,

case, that the old way of *Physick* in respect of Method and Medicines, is insufficient and useless.

For many Maxims in *Medicine*, are founded upon the long and constant Observations and Experience of the World, and so adapted to the very Nature and Constitution of Man, that in all places and times, they must of necessity be of admirable use. For indeed, many Rules of this Art, are not grounded upon any *Hypothesis* contriv'd by mans brain, but are themselves the very foundations, which will (though possibly *Philosophers* have rais'd upon them an ill contrived, and incommodious Structure) remain, (when the Superstructure is demolished) stable and unshaken. And, though it must be confessed, that the *Physiology* and *Pathology* of the Ancients, are very insufficient to satisfy an inquiring man concerning the true causes of Diseases and their Symptoms, yet much of the Method certainly is not grounded upon them, but was long in use before those notions of Causes were invented.

The learned Dr. *Willis* speaks much to this purpose, in his Preface before his *Book de Febris*. He tells us, that in the cure of Fevers, some indications anciently received, do in this age stand firm, and ought

ought to be observed to the worlds end ; and that they are not founded upon the precepts of Schools, but upon Experience, the Mistress and Teacher of the Art of Physick. And that, though the Hypotheses of the Ancients were erroneous, that did not hinder the practise of Physick, which was first established by induction from Observations, from going on successfully : And thence he concludes, that much less shall a Theory built upon true grounds be pernicious to the sick, or cause practitioners to leave that track, which Time and Experience has recommended to them as safe. And it cannot be denied, continues he, that bare Empericism, without the assistance of Method and Reason, does signifie very little; nay, that it does most commonly do a world of mischief, considering, that the very same Diseases, are not at all times and in all places to be encountred with the same Remedies: but he that has so joyned both together, that Reason shall not give Laws to Nature and Experience, nor these corrupt Reason, seems to be a most absolute and compleat Physician. Now, if it be true (as this excellent Philosopher and Physitian affirms) that much of the method, and many of the precepts of Physick do, and will alwayes continue firm and useful, because they are not established upon phantastical Notion's (such as are the
Author's

Author's of *Medela*) but upon unerring Experience: no lesse will those Medicines, which the constant trial of the World has recommended as effectual, remain serviceable to Physitians, before such as are imagined by the touchy head of *M. N.* or any other whimsical Inventer of Secrets and Remedies. For I have already prov'd at large in the first *Chapter*, that the *Materia Medica* is wholly founded upon Experience. That Medicines were at the first found out *Crebro singularium tentamine*, by a frequent Triall of each Medicine upon sundry persons. I have there shew'd how dangerous it is for ignorant Quacks, to Experiment Medicines (especially such as are hazardous) upon the Bodies of men.

I am, for my part, of the same opinion with *Varandæus*, who told the ingenious and learned Doctor *Primrose*, that *those Remedies are the best which are no Secrets, but best known, as being confirmed by more certain Experience.* I confesse (sayes that eminent *Physitian*) that all the virtues of *Simples* are not yet perfectly known; as yet many lie hid. If therefore any man hath found out by Experience, the virtue of some simple Medicament not yet known, that increase of Art is to be commended, and deserves to be called a Secret; as he that first found out the

Primr.
Popular.
Err. 1. 1. &
12.

Vomiting virtue of Antimony; he that invented the compounding, and found out the efficacy of Gun-powder; he that first brought Jalap into use, had Secrets greatly to be commended: such as these if any man have, he is worthy of commendation, and I think, no other secrets are to be admitted.

But I think it is very evident, that these Discoveries are not the products of Invention but Chance, and upon this score mankind is possibly more indebted to Nature, for discreetly concealing the way of making gold than if she had made it as common and easy to the Chymists, as she has the Art of making Cheese and Butter to the Countrey Housewives, for in the prosecution of that, she has casually enriched the world with many accidental Experiments, both in Philosophy and Physick, much more considerable and beneficial to men, than if she had taught us, like *Midas*, to turn all things which we touched into Gold. If I mistake not, Doctor *Harvey* does somewhere tell us, that he never dissected a Body in his life for the examination of some part, or tracing some Vessel which he propos'd to himself, but in the operation, some new thing was unexpectedly offered to him, which was usually more considerable than the matter which he designed. I am apt to believe, that

that we are not only in a great measure depending to Chance and Experience, for the Knowledge of the Virtues of Simples, but that even in Compound Medicines, there have often virtues and qualities resulted from the Mixture, which were never foreseen nor designed by the Artist who put the ingredients together, but discovered by Experience.

We see, that as to those very ancient Medicines, *Mithridate*, *Treacle*, and *Diascordium*, which are Compounds esteemed sacred for their Virtues, as well by the Chymists as Galenists, it is much more easy to prove the truth of their efficacy, than to give the true reason of their Composition.

I would fain know of *M. N.* how he could have been certain that *Antimonium Diaphoreticum* should not Vomit, or *Mercurius Dulcis* not have retained in it the corrosive faculty of Sublimate, had not Experience cleared their innocencies, neither can he promise, that the action of fire, or a Menstruum upon those Bodies shall not produce Concretes out of *Antimony* or *Mercury*, as highly venomous as these mentioned preparations are safe and benign. We see that *Tobacco*, which by all sorts of men is indifferently taken, with-

out almost any sensible mischief, affords a Spirit one of the most sudden and potent poisons in the world; which, possibly, was at first discovered at the expence of a mans life, by some bold and venturous Chymist. It is Experience, and not Reason, that has taught the *West-Indians* that they may safely make their Bread of the Root of *Casave*, though the expressed juice of it (as *Bontius* tells us) be an arrant poyson.

Bont. Med.
Indor. P.
211.

Therefore, though *M. N.* brag of his invented Medicines, and tell us, that doubtlesse he is a very wicked man, which will administer any Medicine, which he knows not whether it be safe or no; and a very ignorant one, that is not able to judge certainly, if he invent a new Medicine, whether it be fit or no; or who dares not adventure it first upon his own Body, yet shall presume to give it to another: I must plainly tell him, that it is very hard for an ignorant practiser of his own invented Medicines, not to be very wicked. And for his part (if he be not foully abused by the opinion of the World) I think there is no lesse danger in trusting to his Integrity than Skill. But indeed, he is a Gentleman very worthy upon whose Body (as the mortal force of *Charous Cane*

Came in Italy, is tried upon Malefactors and Doggs): dangerous and pernicious Medicins (especially his own) should be experimented.

Sands
Trav.

— *Nec lex est justior ulla
Quam necis artifices arte perire sua.*

And therefore I advise him (if he will needs be dabling in *Physick*) to content himself with his Collections from Farriers and Herdsmen, and his good Aunt (to whom he owes most of his skill) the cunning Woman of *Burford*.

CHAP. VII.

I Am not so religiously sworn to the Philosophy of *Aristotle* and *Galen*, as to take upon me the defence of Elements, Qualities, Temperaments, and Humors.

De Con. &
Dissen.
Chym. cum
Gal.

Yet since the grave *Sennertus* gives advice, That words, and terms, imposed by the first Inventers of the Art of Physick, and established by the Use, Consent, and Approbation of all both Chymists and Galenists, ought to be reteined, and not unadvisedly laid aside; I will endeavour to shew, That Heat, Cold, Moistness, Dryness, may be most pertinently reckoned amongst the Causes of Diseases; and the terms of Temperaments, and Humors, may be not incommodiously retained, even to explicate the most refined Notions in the reformed Theory of Physick.

Sennert. de
Con. & Dis-
sen. Chym.
cum Gal.
c. 15.

For though I do agree with *Hippocrates*, That acid, bitter, sharp, and salt, and possibly, a Thousand more different Modifications of matter, are to be reputed, as well as those vulgarly called, the four first Qualities, amongst morbid Causes: Yet I cannot but assent to the learned *Sennertus*, who tells us, That the Chymists do ill, wholly to reject the first Qualities

ities from being Causes of Diseases. For we find by experience, that as soon as a preternatural Distemper, either hot, cold, moist, or dry, is induced upon any part; the action of the part is presently hindered neither is it able to perform its duty and office, till the natural temper be restor'd; which is commonly known to happen every day to the Stomack: And he quotes Galen, for instancing, *That some by sitting too long upon a cold stone, or by staying too long in cold water, have had the Muscle of the Anus resolv'd:* And he makes mention of another, *Who in a cold and moist season, by wearing too long his wet Coat, fell into a Palsie of his hand, the Nerves which come from the spinal marrow to the hand, being thereby too much cool'd and moistned:* No body is ignorant, how prejudicial it is to a man to drink largely of cold water when he is hot. And since, according to Hippocrates, the Cure indicates the Disease, the same mentioned Author bids consult Galen, what great things may be done by Baths of water in Hectick Distempers. And he farther adds, that the advice of Scaliger to Cardan, may very well be made use of to them who resist both Sense and Experience, who upon Cardan's asserting, That Cold was only a Privation; to convince him, advis'd him, to leave off

his Cloaths, and go Bare-leg'd, and Bare-headed in the extremity of Winter. Travellers do often, to their Cost, find of what force Cold is, when they lose their Noses, Ears, Feet, and Hands, mortified by the violence of its congealing power. Furthermore, every days Experience informs us, what changes and alterations are made upon our Bodies, as to Epidemical diseases, by the hot, cold, moist, or dry Constitutions of the Seasons and Years. And I cannot but wonder, that the *Chymists* should exclude the four first Qualities from having any causality in diseases; when in their own operations, they observe a notable disparity between the effects of a dry, and moist heat: and they employ heat, as the common instrument of almost all their operations. But whilst I assert the Efficiency of the first qualities, in the causing of diseases in the humane Body; I would not be understood, to mean by the word Quality, a Being or Entity distinct from matter or Body; But that I apprehend by hot, cold, moist, and dry, the parts of matter, or Atoms so figured, and moved, as to produce those Effects which we call heating, cooling, moistning, and drying. For Example, We use to have an apprehension or notion of heat, from the relation it has to
the

the sense, or as it is the efficient cause of that acute passion, or sensation, which we feel in our skin, or any other organ of touch, whilst we are burnt or heated. But this being too particular an effect of heat, only as it works upon an Animal; we ought therefore to consider it from its more general, and comprehensive effects, upon which this which is more special does depend; which is to enter into the Pores of a Body, to penetrate through the parts of it; and to force, or rend them asunder from one another, and so to dissolve the union and continuity of the Body. This cannot be understood to be done by a bare naked quality, but by certain Atoms which are endued with such a motion, figure, and size, as are fit to penetrate, discuss, dissolve, and perform all those effects which we usually attribute to heat. On the other side, since we find cold the most opposite thing in the World to heat, if it be the property of heat to dissolve, discuss, and tear asunder, it is then the property of cold to congeal, fasten, and close together; and those Atoms, which by their shape and figures are fit and proper for those effects, may, with very good Reason, be called Atoms of cold; and Bodies made up of such Particles, cold Bodies. Thus the Air (which
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is the common Receptacle of heat and cold) upon the blowing of North-winds, is usually filled with such Atoms, as bind, and congeal the Earth, and Water; and in the body of man, both by mingling with the blood, and closing the pores, or breathing holes of his body, oftentimes produce considerable disorders. As for humidity, or moistness, it seems to be nothing else but a kind of fluidness; and Liquors are commonly said to be moist, inasmuch as when they are poured upon hard and compact bodies, some small parts of them are left behind, either sticking in the little Cavities of the Surface, and then the body is said to be wet; or else have insinuated themselves into the most inward pores and recesses of the hard body, which then we commonly say is moistened. And, on the contrary, driness is nothing else but a kind of firmness, inasmuch as a dry body is upon that score the more firm for being void of all moisture.

And now I cannot see why these four first Qualities (as they are term'd) should be excluded from having a share in the number of the causes of Diseases, since they are notably active (especially the three first) modifications of matter; and not only apt to excite various motions, and cause, as well

new Combinations, as dissolutions of bodies in the great World ; but also powerfully to alter the Microcosm, and produce fundry different Symptoms, in relation to the motions and harmony of the humane Engin.

In the next place, though it be utterly untrue, that there are in the Vessels four distinct humors ; but whatsoever is contained in the Arteries and Veins, is either the stale deflagrated blood, or the alimentary juice fresh come into the Vessels ; or else the Serum or Whey returned by the Lymphaticks, or else some Particles of Nitre, and other bodies received in by the Lungs and Mouths of the veins from the Ambient. And though the blood differ in several persons only as to the abundance, or defect of natural heat ; yet are men not improperly said to be of a melancholick, cholerick, or some other temperament ; inasmuch, as by how much the more vigorous or remiss the natural heat is in their bowels and entrals, by so much the more weakly or powerfully concoctions are perform'd, and consequently the blood apt to be overcharged either with stale, and adust, or else crude, and phlegmarick Excrements: In which respect, the person either way disposed, is not improperly said to be of a phlegmatick, or cholerick

cholerick temper ; and if the adust, or raw Excrements, be not rightly and duly separated out of the mass, by the effervescency of the blood, I see no reason why I may not say, that a man abounds with a melancholick, cholerick, or phlegmatick humor ; and if so, the Notions about Pharmacy, aiming at an evacuation, or else alteration of these humors, are not framed amiss, nor (whatever *M. N.* argues to the contrary) without very good reason. For, I suppose, it alters not much the case as to practice, whether a man suppose that there is too great a redundancy of one of the humors in the blood, or whether (which is the right Notion) he apprehend the blood depraved, either with phlegmatick and raw juyces, or the bilious Excrement consisting of Salt and Sulphur, or the melancholick, in which the *Caput mortuum*, or earthy part, is most predominant. For either of these Notions will direct us (when the blood is unable to fine its self) to assist it with those alteratives which time and experience has recommended to us as proper in those cases, and those Purgers which have been long observed more particularly to make a separation, either of the pituitous, cholerick, or melancholick parts of the blood. For, though it be irrational to think, that

Purgers

Purgers do with a certain knowledge, or choice, lay hold of one humor rather than another; yet is that distinction of Purgers into *Chologoga*, *Phlegmagoga*, *Melanagoga*, and *Hydragoga*, of very good use, and founded upon observation and experience; inasmuch as these several Purgers by causing very different Fermentations, and variously agitating the Particles of the Blood, may, with very good reason, cause different separations; and so one Purger to evacuate that sort of Excrement, Barm or Lee, which another cannot.

And in this matter I do not find, that the Improvements which have been made in the Theory of Physick, have much altered the Practice; for the indication for Purg-
ing was not founded upon the Notion of the four Humors, but upon long observation, that when Distempers discovered themselves by such and such signs, the body was to be emptied, and, by frequent tryals, one Purger (as especially *Hellebor* in Melancholy) was found more effectual than another. The same may be said of altering Medicins; for Example, to instance in Hepaticks, as Cichory, Gentian, Wormwood, Century, Steel, Agrimony, and the like; which are with admirable success used in Cachexies, Dropsies, and other Diseases, caused

caused from imperfect Sanguification, though it be now agreed upon by general consent (upon the Dissection of Hydropical persons, that part being often found little concern'd) that the Liver has primarily little or nothing to do in those Distempers, and is only secondarily affected, as being, (as I have shewn) very justly excluded from the office of Sanguification. And yet we see, that Hepaticks are still used in the same Distempers by the best, both *Chymists* and *Galenists*, though the ancient *Hypothesis* be flung out of doors.

As for *M. N's* denying the Spleen to be the Receptacle of Melancholy, and assigning it this use, *That it is an Elaborator of the noblest juyce, viz. the arterial blood, by reason of that grand intertexture of Arteries, by which it holds a near communication with the vital parts of the body; for which, he quotes Bartholinus, Walaeus, and Highmore:* I dare assure him, he does those worthy Authors great injury; and that neither in them, nor any good Author, who understands the Circulation of the blood, he ever met with any such opinion, That the Spleen, by the Arteries, can hold a near communication with the vital parts of the body; neither do those Authors which he quotes, deny the Spleen to be the Receptacle of Melancholy.

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Anat. c. 16.*

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*Barthol.
Anat. c. 16.*

in eo naturaliter licet invenire, sed quod lien attenuantem illum acidum nequeat sanguini Chylo recomunicare.

Highbm.

Anat. l. 1.

p. 3. c. 3.

Nor has this man of Confidence with less Disingenuity, or Ignorance, fastned his absurd phansie upon the learned Dr. *Highmore*, whose opinion I will deliver in his own words, as it is to be met with in his Anatomical disquisition of the body of man. *Illorum partes agam, qui Splenem cum Galeno succum melancholicum attrahere, eumque a sanguine separare autumant.* And he goes on a little farther, *Arteria Splenica a Caliac a orta sanguinis partem melancholicam, postquam ultimam in corde concoctionem subivit, ad lienem deferunt, ac in substantiam ejus infundunt (sicuti emulgentes Serosum in Renes ducunt) quam lien fermentat ac separat.* These are the opinions of *Bartholinus* and *Highmore*, as I have faithfully quoted in their own words, whose sense either he understands not, or fraudulently perverts.



*A Digression concerning the use of the Spleen,
and Hypochondriacal distempers.*

FOr the better understanding of the use and office of the Spleen, it is requisite to examine the shape, make, and mechanical contrivance of it, that (as by taking a Watch asunder, we are inform'd for what end and purpose every Spring, Pin, and Wheel was made;) we may the more certainly discover what the design of Nature was in framing that Bowel; by tracing the Arteries, Veins and Nerves which constitute it; and considering the quantity, colour, site, figure, and other appearances which offer themselves to our view. And first, as to the bigness of it, that is very different according to the variety of mens bodies. They, generally, who have large Veins, have likewise great Spleens. The lesser (except it be much too small) is far better than the bigger. The figure of it is most commonly oblong. The colour in *Embrios*, and young Children, red; in those who are more mature and adult, inclinable to a blackness. The substance of it consists

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of black, gross blood congealed amongst the Fibers. It is furnished with three sorts of Vessels : First, It receives a large branch from the *Celiac* Arterie which disperfes its self into innumerable small Twigs amongst the Fibers. In the second place, It has a vein with sprouts into it from the *Porta*, which is all spent and lost in the substance of it, except only two arms, the *vas brevis*, which goes away to the stomach ; and the other the Hemorrhoidal vein, which runs away to the *Anus*. The coat of the vein which enters the Spleen (as was first observ'd (as I take it) by the learend Dr. *Glisson*, in the Spleen of an Oxe) the farther it goes, grows thinner and thinner, till at length it vanishes, and nothing of it appears ; and all the way it runs, it is (as it were) boared full of some lesser, some larger holes, which receive into them the blood returning out of the *Parenchyma*; and these holes, after the manner of veins, branch themselves into the *Parenchyma*. In the veins, there are evidently to be seen Valves, which stop and hinder all passage and commerce from the *Porta* by the Splenic branch to the Spleen; only there may be plainly observed an *Anastomosis* between the upper branches of the vein and Arterie.

In the third place, the Spleen is furnished with

with Nerves from the Sixth Part (according to the Ancients, or Eighth, according to Dr. Willis) which, with their numerous Threds and Fibers, weave themselves into a kind of Net, upon which the *Parenchyma* sticks, leaving everywhere multitude of little holes, which are not unfitly resembled by those in a Sponge, or Pumy-stone, into which the small Arteries running every where dispersed amongst the Threds of the Nerves, empty themselves of the blood; which having passed through, and washed the whole substance of the Spleen, is again drunk up, and carried away by the veins.

From this description of the Spleen, it seems most probable, That all this Art and Workmanship was bestowed upon it by Nature, that she might make it a part of some eminent and necessary use; and not design it for the sink or drain of the body, or an idle and unprofitable bowel. For indeed it is not her custom to be at expence of so much skill and pains, to so little, or no purpose; for it cannot be imagined, that she intended it for the separation of Excrements and filth, since there is not any excretory vessel or passage to be found which belongs to it.

Nor is their opinion more likely, who suppose the Spleen to be as a Bath or Stove to heat and warm the stomach with its blood, since neither its fibrous constitution seems proper for such a use; nor its situation, since in most Creatures only one end of it lies near the stomach. Besides, that it is now taken for granted, That concoction in the stomach is performed by an acid *menstruum*, rather than heat, and therefore can stand in little need of the assistance of the heat of the Spleen; especially, since we find, that Fish, and other cold Creatures, dissolve their meat easily, and quickly; and yet upon the opening of them alive, we find no more sensible heat in their stomachs, than in other parts of their bodies. Agreeable to this, I have observ'd in the stomachs of Mice some parts of a Tallow Candle dissolved in the bottom of the stomach by the *menstruum*, when the rest that lay up towards the upper orifice, was not at all melted by the heat.

The use then for which (from the Make and fabrick of this bowel) it seems to be framed by Nature, is this.

That the blood brought hither by the *Cæliac* Arteries, passing through many turnings and windings, and (as it were) percolating through the *Parenchyma*, does leave behind

behind it (as Salt-water streined through Earth) some salt and earthy parts, which after they have undergone some alteration by their mutual action one upon another, by their attrition, and jostling in their passage through the several Cells, Cavities, and Pores of the *Parenchyma*, are by the fresh blood which perpetually flows thither by continual Circulation, carried back through the veins into the mass of blood, in which they serve for a most useful and effectual Ferment. Thus we see the *Chymists* separate the acid Spirit from Liquors, and in the Liver the sulphurous or bilious part of the blood is separated into the vessels of Gall.

Now, for the clearer apprehension of the manner and way how the Ferment of the Spleen works upon the blood, and other juyces, it will not be improper in this place to take notice of those ordinary and familiar Ferments which the Bakers and Brewers every day offer to our consideration.

The learned Dr. *Willis*, in his most excellent Treatise, *De Fermentatione*, tells us, That there are two sorts of Ferments.

One, an *Absolute*, of which all the Particles are wonderfully active, and indued with vigour, and brisk motions; and therefore

being mingled with any thing which is to be fermented, they seize upon the Particles of that body, of what kind soever they be; and though they were sluggish and anaestive before, hurrie them along with them in their own motions. Thus Barm, Eggs, and the like, do almost in all bodies, with which they can be mingled, cause a Fermentation.

The other, is a *Respective Ferment* which consists most commonly of Particles of one kind, which will only ferment with Particles of another particular kind and nature, when they chance to meet. Thus fluid Salts ferment with fixed or alcalisate Salts, as we find, when sharp Liquors are poured upon Coral, Harts-horn, Shells, Steel; and when Spirit of Vitriol, and Salt of Tartar are mingled together, a great Ebullition does ensue; such a Ferment as this is most probably communicated from the Spleen to the blood and juyces. Now, though it must be confessed, that the saline and terrestrial parts which constitute the Splenick Ferment, were actually in the blood before ever that they came to the Spleen; yet were they before that so entangled and engaged with the other Principles, the watry and earthy Particles of the blood, that they could not then excite those Fermentations which

which depended upon their proper figures, and genuine motions.

But in the percolation of the blood through the porous *Parenchyma* of the Spleen, the combination of the Principles which constitute that Liquor is in a manner dissolved, and the saline and terrestrial parts are disjoined from the Phlegm and Sulphur, to which they were before very closely united; which being free, and in a manner at their own disposal; nor any ways dulled and blunted by the adhesion of those other Principles, and thus digested (carried through the veins into the mass of blood) perform those effects in it which are sutable to their natures; which whilst they remained in combination with the other Principles, they could not possibly produce. For then being by reason of their newly acquired Figures not easily miscible with the rest of the blood. they excite an intestine motion of all the little Particles of it; and by that means, deliver the more spirituous and fine parts from being too much oppressed and choaked up by the more sluggish and gross; and, in short, work that in the blood which is performed by a little Leven in a huge Tub of Dough. For as a little piece of Dough kept so long till it be stale and sowre, ferments the

whole mass, and makes it light and rare, which would otherwise have been close and heavy; so by the mixture of this acid Ferment of the Spleen, the whole blood is rarefied, made more lively and brisk, and fit to circulate, for the better supply of the Natural, Vital, and Animal Constitutions.

That the Blood is after this manner fermented by the leven of the Spleen, is farther argued from the Diseases, which from the obstructions and schirrouisness of this Bowel, are wont to ensue; such are *Cachexies*, *Dropsies*, and the like Dyscrasies of the Blood, which necessarily happen upon defect of the Spleenick ferment. And it is not unworthy of observation, that Medicines made of the Spleens of Animals, are recommended to us by Practitioners as proper and effectual for the cure of these Diseases. The Decoction of an Oxes Spleen is commended by many Authors; and the Spleen of a Hog, is, by *Wallaw*, said to be very proper in Crudities and imperfect Digestion of the stomach.

And it may well be supposed that the Saline Particles of the Spleen, taken in by the mouth, and with the Chyle carried into the Veins and Arteries, have the same operation upon the Blood and Bodies of Animals with the Leven of the Spleen, when

when that Bowel is in good order and performs its duty. For that Salts are the most proper Bodies to ferment the Blood, is known by every dayes Experience to Physitians, who, in Chronical Diseases, perform the most considerable alterations upon the Blood, and open the most obstinate obstructions of the Bowels, by the assistance of the fixed Salts of Vegetables and Minerals. Upon this score the Barks of Trees are so much in use, because they contain in them a far greater quantity of fixed Salt than the Bodies; And we see, that in *Dropsies*, *Chachexies*, *Obstructions*, and the like Diseases, which will not yield to vulgar Medicins, the learnedst practitioners betake themselves to Medicins of *Tartar*, *Steel*, and *Vitriol*, as a certain Refuge in the greatest Extremities; and it cannot be imagin'd, how these Medicins should perform such certain and admirable effects, but that by fermenting the Blood with their Saline Particles, they supply the defect of the natural ferment.

For as long as this is vigorous, and the passages are open from the Spleen into the masse of Blood, the Splenick leven by continually maintaining an intestine motion of the small Particles of the Blood, preserves that Liquor in its due mixture and consistence,

ence; so that the grosser and finer Particles, being exactly mingled one with another, and the Spirits free and at liberty, the Blood is rendered fit to circulate through the most streight and narrow passages, and not apt to curdle and stagnate in the Vessels. And by this means, Crudities are concocted, Obstructions opened, rough and slimy humors attenuated, and the Blood defecated of all its Excrements and Impurities, by the vents and emunctories of the Body. By this means, not only the Juyces which run in the Veins and Arteries are rich, pure, and spirituous, but likewise from these, a soft, subtil, and well rectified Spirit and Liquor is communicated to the Brain, and distributed into the Nerves for the use of the Animal Function, and exercise of Sense and Motion in all the Instruments and Organs designed by Nature for those uses.

Furthermore, it is very probable, that the Splenick Ferment does by the Arteries, out of the masse of Blood, supply the stomach and Bowels, which serve for the concoction of Aliment, with a *Menstruum* (not unlike those Liquors, with which the *Chymists* dissolve Mettals and other Bodies) for the dissolution of meat and reducing it to Chyle. For we cannot with Reason,
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assign that work to Heat, since the most intense fire cannot by roasting, baking, boiling, or any other way of applying of that Element, reduce bread, flesh, and other meats in many dayes, into a substance so fluid and thin, as the Stomach can in a very few hours.

Now as the Spleen (whilest it dispenses a sincere and rightly elaborated ferment) is a Bowel of great use and importance, for the preservation of the blood and Spirits in their due temper and motion; so does it often cause very considerable disorders and extravagancies in the *Oeconomy* of the Body, when it degenerates from its natural constitution, and infects the Humors and Spirits with an impure and ill digested Leven. For, that the Blood may duly and orderly ferment and circulate, it is most requisite, that the intestine motion of the little Particles which constitute it, be neither too furious and tumultuous, nor too heavy and sluggish. And for this reason is it (as I suppose) that the fixed Salt is separated from the Blood in the Spleen, and again returned, and mingled with the Masse by the Veins. For indeed, fixed Salt consisting of parts which are indued with some kind of Acrimony, and yet being not too severely acid, seem to be Bodies most proper

proper to maintain a leisurely and orderly Ebullition. But if the ferment once grow too sharp, and acid, and acquire parts, apt to provoke, irritate, and prick the sensible parts of the Body, and the fixed Salts become to be fluid, it presently affects the whole stream of the Blood, puts it into violent and disorderly motions, vellebrates the nervous parts, fixes the Spirits, puts all the humors into a hurly burly, and makes them apt to congeal and stagnate. For when this Ferment is rightly made, it consists of Salt, with the addition of a moderate quantity of earth, by the mutual Conjunction of which fixed Salt is produced. but, if by any means there be a separation made of the Saline part from the earthy, then are the Salts said to be in the state of fluidity, because they run together into a Liquor, as Spirit of Salt, Spirit of Vitriol, and the like. Thus, when the Ferment of the Spleen becomes fluid, it acquires the fierce sharpness of Vinegar, or Spirit of Vitriol. This is the fault of it in Hypochondriacal Persons. For, in men who labour of those Distempers, all the fixed Salts of the Blood which circulate through the Spleen, are there made fluid, till at length they come to prevail over the other principles of the Blood, and turn the whole

whole stock of it into a Liquor as sharp as Vinegar, or Spirit of Vitriol, by which means, all the Spirits are depressed and kept under. The sowre Belches and Vomits of Hypochondriacal Persons, which oftentimes are no lesse sharp than Spirit of Vitriol, are a very sufficient argument of the sharpness of their Juices, which prick and tear their stomachs, bowels, and nervous parts with continual pains and torments; and sometimes with their Corroding acidity flea their Tongues, Throats, and Lips.

And the violent and irregular motions, and boylings of the blood, do very evidently convince, that the Constitution of that Liquor in Hypochondriacal Persons is become sharp and eager; For we find it most true from sundry experiments that such tumultuous Ebullitions are caused from the mixture of fluid Salts with fixed: and in Liquors, which are void of fluid Salts, we meet with no such fermentations; or where they are but in small quantity mingled, the fermentation is lesse, and more leisurely and nothing so tumultuous.

In quick-Lime, and Juices which abound with acid Salt, as soon as the fluid and fixed meet with one another, presently a noise

noise, heat and boyling do ensue. Thus we see Salt of Wormwood, Scurvy-grass, or the like; Coral, Pearl, Oyster-shells, and other testaceous bodies; when Spirit of Vitriol, Sulphur, juyce of Lemons, Berberies, Oranges, or any acid liquor is poured upon them, presently fall a boyling and hissing.

Many more Instances of this kind may be given, but because they are obvious to every man, who is in the least versed in Chymical operations, I will pass them by, and farther endeavor to prove from the way of cure of Hypochondriacal Distempers, by the Medicins most approved, and famed by the best and most learned Authors, *That the cause of those affections, consists in a sharp and eager Distemper of the Blood and Juices.*

The Remedies which in this case are most commended, are such as consist of Steel, Tartar, Vitriol, fixed Salts, and all testaceous bodies, as likewise diuretical Remedies, which abounding with fixed Salts, do very much precipitate the blood. For we find by Experience, That these Medicins do sweeten all sharp Liquors, and abate their Pungency; for the Acrimony of Salts is not blunted by Sulphurous, but Saline bodies; by reason that fixed Salts by an intimate

mate and close union to the fluid, do obtund their points and edges, as a thick piece of Steel exactly fitted to the blade of a Knife, will abate the cutting or dividing power of the edge. Thus the corroding sharpness of Spirit of Vitriol is taken away by Salt of Tartar or Wormwood. *Habet* (says *Fonseca*) *Sal Tartari magnam vim domandi humores melancholicos & atros: nam trahit ad se proprietate quadam acetositates, & si aceti fortissimi lbiii. cum 3i. Tartari vini destilletur per ignem, aqua sine ulla aciditate exhibit.* And truly it is very probable, that the reason why Melancholy persons find so much benefit from Medicines of Tartar, is, that by sweetning of the blood and juyces after the same manner as that dulcifies Vineger, the Tartar frees the body from those inconveniencies which are caused by their Pungency and Acrimony.

From this *Hypothesis*, an account may very rationally be given, why Medicines of Steel are used with very good success, as well in Cachectical, and Hydropical Distempers, in which usually the Splenick Ferment is deficient; as in Hypochondriacal, and Scorbutil Diseases, in which that Leven is too plentifully abounding, and too highly exalted. For the vitriolick Salt of Steel (in which much of the force and
virtue

virtue of that Mineral resides) is very properly substituted to supply the defect of a Ferment to the blood; and likewise the same Salt (when the blood is become sharp and eager, and overcome by too large a quantity of fluid, and acid Salt) does (as Salt of Tartar works upon Spirit of Vitriol, or Vineger) abate its Acrimony, and sweeten the whole mass.

It may now be time that I should more particularly explain the manner, how the blood and humors of the body, by passing through the Spleen, do from that soft, sweet, and ballamick constitution (which naturally is in sound and healthy persons) degenerate into a Liquor altogether harsh, sharp and unpleasant to the nervous parts of the body. And for the better understanding of the way how this alteration is effected, it is very necessary to look back to that description, which I have in the beginning of this Discourse given, of the Make and Fabrick of the Spleen. To wit, That the Spleen consists of a great many Arteries, not so many Veins; and of a multitude of fibrous Threads, upon which the Parenchyma, like Clots of blood, does everywhere stick fast, leaving little spaces, or pores, here and there interspersed between the parts of it throughout the whole substance of that Bowel.

I sup-

I suppose then, the little spaces or vacuities in the *Parenchyma* of the Spleen, to be of such a figure and size as is unproportionable to the shape of the saline Particles of the Blood, as long as any Sulphur or Phlegm sticks to them; and therefore they are not admitted to pass along with the rest of the Blood, out of the Arteries into the Veins; but detained so long in the little Cells or Cavities of the Spleen, till by the frequent Circulations of the Blood, and the Collision, and jostling of the Salts against the more solid parts of the *Parenchyma*, they become free from the Phlegm and Sulphur which was join'd to them; from which other Principles as soon as they are disingag'd, they do very readily and easily pass along with the Blood which is circulated through the Spleen, as being then very suitable to the figures of the Pores or Passages; to which, as long as they were united to those other Principles, they were not in the least agreeable. The fixed Salts thus prepar'd in the Spleen, and passing from thence by the veins into the mass of Blood, serve to impregnate and ferment the Liquors of the body, and to preserve them in their due mixture and motions.

As long as the small Passages in the Spleen remain free and open, and that the

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substance or *Parenchyma* of it is not grown so hard and earthy, as to alter the natural position and shape of the Pores, or little Spaces in it ; the supply of a well prepar'd Ferment to the Blood, is duly and regularly perform'd. But if either from a natural melancholy constitution, or errors in dyet, the substance of the Spleen be rendered too compact, solid, and earthy, and the Pores or Spaces are altered from their natural Figure and Magnitude.

The saline Particles in their Percolation through the Spleen, are so worn and grind-ed, that they are not only separated from the Sulphur and Phlegm (which is necessary for the making of a fit Ferment) but likewise forcibly disjoin'd from the earthy Principle (without which they cannot remain fixed, but presently become fluid) And then, instead of a Ferment, which should maintain in the Blood and Humors an orderly and moderate Ebullition, a sharp, eager, and pungent Liquor is sent into the Blood, which puts it into irregular and tumultuous Fermentations, and puts the whole frame of the body into disorder.

That this is the fault of the Spleen in Hypochondriacal persons, seems to me the more probable, for that it is observ'd, *That sanguin and phlegmatick Complexions are very rarely*

rarely troubled with distempers of this nature; and that even they who are naturally of a melancholy temperament, fall not into them before they arrive at a ripeness of Age, when the Blood begins to be adust, and the Spleen to grow earthy and black; whereas in those who are very young, it is of a lively red colour.

It is worthy observation, That this fault or disease of the Spleen, is seldom, or never, perfectly cur'd; and therefore the best Medicines do only by sweetning the Blood, so long allay the Symptoms and Disorders of it, till the mass becomes again infected with acidities from the Spleen; and therefore persons who have been once troubled with Hypochondriacal distempers, do usually periodically relapse into them.

From hence, it will be no very hard matter, to give an account of the causes of the particular Symptoms and Accidents which accompany the Hypochondriacal distemper. They concern either the Natural, Vital, or Animal Faculties.

As to the Natural, the appetite to meat, is often (by reason of the sharpness of the Ferment in the stomach) too extravagant; and yet the meat is ill digested, and much of it turn'd sometimes into a fowre water; at other, into tough slime, by reason that the extraordinary sharpness of the Ferment

Berigard.
Circ. Pisan.

makes it unproportionable and unfit to dissolve the Aliment; for, that this may happen upon such a score, the observation of the *Chymists* does sufficiently evince, who find, *Menstruum nimis acidum metallum suum non solvere*. From the same cause, they who labour of this distemper, are troubled with continual spitting, loathing, and sometimes vomiting; the Stomack being provoked, and convell'd by the gnawing acidity of its *Menstruum*. They are usually hard-bound in their bodies, and seldom go to stool; partly, by reason that the Passages from the Gall are obstructed (one use of Choler being to irritate the Guts, and cause them to thrust out their Excrements) and partly, for that the *Pancreas* (as *Riverius* observes) is usually affected in this distemper, and does not furnish the Guts with a Ferment. For it is very probable, that by *Wirfungius* his passage, a Liquor is sent into the Guts, which mingling with the Bile, serves there to ferment the Aliment.

The fæces in such persons are most commonly very black, by reason of the vitriolick acidity, which mingled with the Salts of the meat, produces that colour, as we see Ink is made by the mixture of the Salts of Galls and Vitriol.

Their

Their Urine is generally very highly coloured, like a strong Lie; for that much of the Salt being not sufficiently volatilised, and breath'd out through the Pores, is sent down in the *Serum* through the urinary Passages. When the Urine comes away thin and white, it is for the most part, the certain forerunner of a Fit; for that either the saline parts are carried up to the head, and flung upon the Nerves; or because the fixed and fluid Salts meeting together, encounter and ferment with one another; and coagulating together, are not dissolved in the Whey of the Blood; and so that runs through the Kidneys clear, and without any tincture from the Salts.

As to the Vital Faculty, they find often about their breast, a great oppression, straitness, and difficulty of breathing, and sometimes fall into Asthmatical Paroxysms: Moreover, they complain of a trembling and palpitation of the heart, of a great weight and oppression at it, so that they every minute apprehend they are a dying. All which Symptoms proceed partly from the sharpness of the nervous juyce which grates and vellicates the Nerves, and is apt to stagnate in them; and partly, from the Blood, which is not well and regularly fired in the heart.

- In relation to the Animal Faculty, there are very few Symptoms in this Disease which do not owe their original, either to the brain, or the nervous parts; or else to the nervous juyce. From hence proceed acute and wandring pains, about the Medistin, and Shoulders, and sometimes such as imitate the colick and nephritick Passions. From hence are often Apoplexies, Epilepsies, Palsies, Giddiness, Watchings, unquiet Sleeps, and many other Symptoms, which are caused from the disorder of the Animal Faculty.

Now, the head and nervous parts are two several ways affected from the distemper of the Spleen.

1. From the Blood made fowre and cager by the Spleen, a Liquor is distributed to the brain and nervous parts, infected with the same harsh and ungrateful quality, which perpetually grates, and provokes those tender and sensible parts:

2. The second way, by which the brain is affected from the Spleen, is, when the extremities of the Nerves, which are distributed throughout that part, are pricked, twitched, and vellicated, by sharp juyces which are lodged in that Bowel; from whence Convulsions are communicated to the brain, and nervous System; by which means,

means, the Spirits are put into disorder and confusion in their very fountain and original; and being tumultuously darted into the branches of the Nerves, do sometimes in one part, sometimes in another, cause violent and convulsive motions.

There is a story in *Tulpius*, of a man, whose Spleen was fill'd with so sharp and pungent a Liquor, that if the part were only pressed by the hand, his Brain, and whole nervous System were presently drawn into consent. *Lien in eo* (sayes that Author) *a turgido atra bilis fermento jam tumidus diffudit illico ex se vapores cerebro tam inimicos, ut juvenis protinus consideret in gravissimos morbi comitialis insultus. Nam pressa vel solo digito regione lienis, contrahantur illico omnes nervi, & sequebatur confestim miserabilis totius corporis concussio.*

It is now high time to return to *M. N.* and to tell him, That he very unreasonably vents his Gall upon the Physicians, for treating of bilious or cholerick Complexions and Diseases. For, though according to *Helmont* and *Sylvius*, Bile may be very useful in some parts of the body; yet in respect of others, it may be an Excrement; and though it may

serve for a useful Ferment in the Guts, yet too great a quantity of it in the Blood, may cause a Disease, and indicate an Evacuation.

Willis de
Feb. c. 1.

Consonant to this, is what Dr. Willis sayes in his Book *De Feb. Quando pars Sulphurea exorbitat, ac in cruore nimis luxuriat, ejus Crasin a debito statu pervertit, ut exinde Sanguis vel depravatus, seu biliosior factus Succum alibilem non rite coquat, vel in totum accensus, astus atque ardores, quales in febre continua oriuntur, concipiat.* And this learned Person in the same Treatise tells us,

Willis de
Feb. c. 3.

That the reason why Vomits do often cure intermittent Fevers, is, because they pump up the Choler out of the Bladder and Vessels of Gall; and by emptying of them, make room for the bilious Humor, or the Particles of adust Salt and Sulphur, which are too plentifully mingled with the Blood, to be separated into those Receptacles.

And now, as to Chymistry (to which the Author of *Medela* so much pretends) I must, with some Compassion, take notice, That he has burnt his Fingers as unhappily in the Furnaces, as he before cut them with the *Dissecting Knives*. For, after all his bragging of his Secrets, of being one of the *Adepti*, and his Sagacity in penetrating
Helmont,

Helmont, he has (poor man) most unluckily confessed himself to be grossly ignorant of the very Principles of Chymistry, in affirming, *That the Sulphur is lighter, and more Aethereal, than the Spirit.* If the Gentle-

Med. p.
272.

man would have vouchsafed to have consulted Dr. Willis, whom he quotes every where, when he mistakes him for his advantage, would have learnt from him, *That Spiritus sunt substantia maxime subtilis, aetherea, & diviniore auri particula;* and that *Sulphur est principium consistentiae paulo crassioris quam Spiritus, post ipsum maxime activum. Cum enim soluta mixti compage Spiritus primo erumpunt, particulae Sulphureae statim subsequi nituntur.*

Willis de
Feb. c. 2d

Here Dr. Willis tells him, *That the Spirit is the most light and subtil Substance, that the Sulphur is a grosser Principle;* and I dare challenge him, to produce any good Chymical Author, who ever affirmed, *Sulphur to be lighter, and more Aethereal, than Spirit;* and if he do, I will assure him, That I will disbelieve what now, by this instance, I am confirm'd in, and received from a very good hand: To wit, *That after he had published his Medela Medicinæ, he was discovered by some Physicians (into whose Company, to see a Course in Chymistry, he had*
slightly

slightly crept) not to understand so much of that Art, as amounted to the making of flower of brimstone. A very fit person to undertake the demolishing the old, and the laying of new Fundamentals in the profession of Physick.

CHAP.

CHAP. VIII.

I Have in the foregoing Chapters prov'd, that many of the Methods, Medicines, and Terms of the Ancients, are to be retained, and that many of their Notions about Pharmacy, will as well suit with the Modern, as they did with Ancient suppositions. The businesse of this Chapter is, to shew, that the particulars offer'd by M. N. in his eighth Chapter, do not either at all, or else no more than the Notions by him rejected conduce to the practice of Physick.

And first, he offers it to our consideration, that Diseases, like Pompions and Turnips do grow from their peculiar Seeds; and that the distemperatures which we find in our Bodies, are but the blossoms, fruits, and products of them; and that they, like Animals, ingender and propagate their kinds. This opinion is taken from Paracelsus, and Severinus Danus, and concerning the Origination of these Seminalities, they Phanatically talk after this manner: They tell us, That though at the

the first Creation, when by the Divine impression, all Seeds of things received the power of generating and multiplying, they were pure, entire, and perfect, and free from corruption and death; Yet after the fall of Adam, by a Curse of the Creator, new tinctures were added to those pure Seeds, by which mixture the Beauty of the whole Creation was deform'd, and the pure Seeds of things were invested with new and pernicious Habits and Properties; and that these impure Seeds, received from the same Divine impression and word, from which the purer and more perfect did, powers and faculties of multiplying and transplanting.

This is the sum of what Paracelsus and Severinus deliver, concerning the Seeds of Diseases, and out of them, the rest of Chymists who treat of them, have borrowed their notions. But the Opinion seems so Phantastical and Extravagant to all sober Chymists, that they have wholly rejected it as a whimsy, and have with much more reason, deduced the causes of Diseases, from the Exorbitancies and Combination either of three, or five Chymical Principles.

Sennert. de
Con. &
Dissen.
Chym. cum
Gal. c. 16.

Sennertus particularly has shewed, the absurdity and impiety of this Opinion. *In eo vero parum a delirio abest Manichæarum Severinus quod post hominis lapsum primis illis Seminibus*

minibus puris maledictione divina novas tincturas supervenisse scribit, quarum Commixtione pura illa semina corrupta & inquinata sint, eaque semina voce, divina eque ac alia semina vim sese multiplicandi accepisse. In qua opinione, multa absurda imo impia sunt. Primo, Deum autrem & Creatorem mali, morborum, & mortis faciunt; Eumque aliquod malum Substantiale creasse statuunt, quod impium. Deinde, duplicem faciunt Creationem: priorem qua benedictione, & sex dierum spatio perficitur: alteram jam diebus sex elapsis, post hominis lapsum, qua maledictione Dei rerum puris seminibus & radicibus, radices male, vel tinctura morborum & mortis autores concreata & addita sunt. Cum tamen Litera Sacra expresse testentur, Deum die septimo quie visse ab omni opere & nihil amplius creasse. Et, maledictio Die tantum pœnam indicavit, non vero naturam pravam induxit.

The next point which *M. N.* would have considered, as of great importance to the practice of Physick, is, to increase the number of Concoctions and Digestions of Aliment, which the Ancients have assigned to be but three.

And indeed, if we consider the grand dissolution, alteration, and apposition of the nourishment, the division of the Ancients

ents will be found sufficiently comprehensive; For the great and remarkable alterations of the Aliment, are the dissolving it into Chyle, the changing of that Chyle into Blood, and the apposition of the nutritious Particles of the Blood, to augment and nourish the Bulk. But if we reckon the separations and impregnations made in all parts of the Body, the generation of Spirits, the particular nutrition of each distinct Similar part, for Digestions and Concoctions of Aliment, (which, I think, is much too nice), I know not why there may not be assigned a hundred, or more.

But, by the way, how many soever there be, *M. N.* might very well have spar'd some of his kinds of Concoction. For through his ignorance of the Lacteals, he readily assents to a Concoction made in the Veins of the Mesentery; and in this, he sayes, the old *Stagers* and *Helmont* agree. From hence it may be well observ'd, that *M. N.* for want of insight into the true grounds of *Physick*, most commonly very easily swallows down the grossest Errors of the Ancients, and usually picks a quarrel with them in matters where no fault is to be found. But, to mend the matter, he tells us, *that the third Concoction is farther elaborated in the common Receptacle inven-*

ted by Pecquet. Now, (to let it passe that matters of Anatomy are not properly said to be the Objects of Invention, but Discovery) it is very shreudly to be suspected, that he knows nothing of that passage but by hear-say; for if he had been conversant in dissections, he would have known, that the Chyle in that Receptacle differs not from that in the Lacteals; and that the swift passage of it through that Channel into the Subclavials, together with the formation of that Vessel, do sufficiently argue, that it receives not any alteration there, worthy the name of a Concoction, all that is imaginable, being the mixture of the Serum which returns from the Lymphatics, through the *Communis ductus* into the Blood.

As to this third particular, concerning Ferments, though I allow that term to be of excellent use, for that it has been of late imployed by learned men, to convey to the understanding an easy and familiar apprehension of the operations of nature, by referring it to the common and obvious arts of Brewing and Baking Yet till the nature and operations of the Ferments of every part come to be more particularly explained, and more intelligibly discours'd of, than they are by *M. N.* I do not see
that

that his Pratling about Ferments, will better conduce to the Practice of Physick, than Quality, Power, Virtue, Property, and the like terms of the *Galenists*.

The fourth Particular which *M. N.* offers, as of grand concern in the Practice of Physick, is the Notion of *Helmont*, who, (as he says) *makes a Disease, a real substantial thing, inherent in that which he calls the Archæus, or vital Spirit.* In which description of a Disease, he abundantly convinces us of his want of Logick, by saying, *That one real substantial thing, or body, inheres in another:* Since the term *Inhesion* is only proper to express the *Aristotelian* Notion of the union of an accident with a substance; and so one material substance cannot be conceived to inhere in another, without allowing a penetration of bodies.

And now he comes in the fifth place, to describe what this Bug-bear the *Archæus* is, and tells us, 'That it is a thing very delicate to be conceived, that it is *Medium* *quid inter vitam & corpus, & veluti auro nitens splendensque.* And, why not as well *Medium quid inter corpus & mortem?* Indeed *M. N.* must have a very delicate understanding, if he can make sense of this description; for I think the Nature of the
Archæus

Archæus is every jot as intelligibly explained in these *Verses*, which were made in imitation of the mysterious and ænigmatical expressions of the *Chymists*.

*Ignis in igne fuit, sed non fuit ignis in igne :
Lux sine luce fuit, non sine luce fuit.*

All that any sober man can conceive of the *Archæus*, or Spirit, is, That it is the most fine, volatil, and æthereal part of the blood, contained in the Arteries, Veins, and Nerves; and I grant, that the Dyscrasie of the blood, their Vehicle, is the cause of many Diseases. But this is a very different thing from the words of *M. N.* and, I suppose too, from his Notion of the *Archæus*; which is either unintelligible by any rational man, or else must be the very same which the Ancients had of the Vital, Animal, or Natural Spirits; and therefore, upon either account, is very vainly offered, as a new particular of great moment and weight, for the meliorating the Practice of Physick.

As to his Quotations out of *Fernelius* and *Heurnius*, those Authors speak no more, than what is said by *Hippocrates* and *Galen*, and all their Followers, *That the Spirits, he*
N impe-

impetum facientia, are the immediate instruments of the Soul; that by them, all motions, sensations, and operations in human bodies are perform'd.

Sennert. de
Con. & Dis-
sen. Chym.
cum Gal.
c. 5.

Wherefore the learned Sennertus (though he allow Paracelsus, and his Disciples, to impose new words upon new things) justly blames them, For introducing new, improper, insignificant, and barbarous terms, upon notions and things anciently receiv'd; and rejecting such, as by long use and custom, had been rendered proper, familiar, and intelligible. And he asks Paracelsus, What necessity there was to bring into use the word Archæus? since that upon diligent examination, that signifies nothing more than the Faculty, and natural Virtue, or the natural Spirit, the Servant of the natural Faculty, do in the Schools of the Philosophers and Physicians. And he adds, That neither Paracelsus, or Severinus, are such great persons, that we must presently for their fancy or humor, reject these familiar terms which have alwayes been us'd by the learned World; and in their stead, without reason, admit of the Paracelsian Gibberish. And certainly, if we consider the nature of the Spirits aright, we shall find, that nothing more than what is signified by them, can be meant (if that term signifie at all) by the

the *Archæus* of the Chymists. For, the vital Spirit is nothing else, but the more fine, more sublim'd, and subtilis'd part of the Blood, by which the Fermentation, and internal motion of the Particles of that Liquor is maintain'd; and that in its circular motion preserv'd from Coagulations, and Stagnations; and (when the body remains in the state of health) a separation is continually made of all immiscible, and heterogeneous bodies, which are either taken in with the Aliment, or else come into the blood from the Ambient. The animal Spirit, is nothing else but the same vital more volatilised, and refin'd in the brain, and from thence distributed together with the nervous juyce through the Nerves, to perform the offices of Sense and Motion. The natural, I take to be some of the animal Spirits, which take up their residence in the extrem Fibers of the parts, and there remain, and are continually refresh'd and recruited, by an influence from the brain; and these the Schools call the innate Spirit, Faculty, or Virtue of a part. Either one of these, or all, must be meant by the *Archæus* of the Chymists, or else that term be altogether insignificant *Vox & præterea nihil*: And whether it be considered

as an idle word, or a new term, to express an old Notion; it cannot but be absurd, to offer it as a particular considerable in order to the Practice of Physick, in the place of the old Fundamentals, which he pretends to have demolished.

CHAP.

CHAP. IX.

IN his Ninth Chapter, *M. N.* proceeds to an examination of divers old Doctrines, which more immediately relate to the Practice of Physick; and first, he cashieres the Doctrine about Critical days, which he calls as childish a conceit, as ever was owned by any Long-beards, called the Children of Men. But I shall plainly prove, That this Doctrine is not so easily to be blown away, being of so absolute necessity to the true management of Fevers, that except a diligent heed be had to the Critical motions of those Diseases, the best and most proper Remedies prove as dangerous to the sick, as a drawn Sword in the hands of a blind man, who lays about him at random, and knows not upon whom, or where the edge will light. For, though the Ancients possibly might be ignorant of the true causes of the Critical motions of Diseases, that did no more hinder them from making true observations upon them, than the disagreement of Philosophers concerning the reasons of the Fluxes, and Reflexes of the Sea, does cause Mariners to be ignorant of

what Tides will carry them into, and out of several Harbors.

And, though it must be confessed, that in these Northern Countreies wherein we live, Fevers are neither so constantly, nor so orderly terminated by Critical Evacuations, as punctually to agree with the descriptions of Hippocrates and Galen; by reason that in this colder Climate (which is perpetually liable to alterations from the Air) the Blood when it is fired into a Fever, does not burn with so equal and constant a flame; and therefore cannot observe so exactly the times and periods of its burning, and consuming the sulphureous or combustible part. And for that the Blood of most Persons being tainted with the Scurvy, cannot so easily concoct, and at once separate the adult Recrements; but that they are often, instead of being Critically evacuated, translated upon the brain, and nervous parts.

Yet is not the Credit of those grave Authors, by every impertinent Man, to be called into question, concerning the truth of the observations which they made upon the motions, and burning of Fevers, in the Countries wherein they liv'd, and practis'd Physick; since they have been always reputed by the most Learned, of unsuspected Faith

faith and integrity in delivering matters of fact, which fell under their own notice.

And indeed, if we consider the true causes of critical Evacuations, we cannot question, but that, in continual putrid Feavers, in those parts of the World, in which, neither the coldness of the Air, nor the Scorbutick distemper made the difference) Nature was as precise in observing her periods, as she uses to be with us in Quotidians, Tertians, and Quartans.

For indeed, a *Crisis* in a continual Feaver, is the very same with a *Paroxysm* in an *Intermittent*, as Doctor *Willis* very well observes: for (says he) as in an *Intermittent*, when the mass of blood is overcharged, with the Particles of the deprav'd Alimentary juice, which can by no means be subdued and assimilated, that falls a working and by its fermentation, depurates its self and sends out by the pores of the skin the heterogenous matter; so, in a continual Feaver from the burning of the Blood and Alimentary juice much adust matter is mingled with the Blood, which, (when it amounts to so great a quantity as to oppress that active Liquor) Nature, as soon as there is the least respite from burning, by degrees subdues, then separates, and at last endeavours to exterminate out of

Willis de
Feb. c. 9.

the Body the morbifick matter.

Wherefore, as the fits of Intermittent Feavers invade at set times, and at the distance of a certain number of hours; so critical motions, observe either the fourth or seventh day, by reason, that in such a space of time, the fired Blood has done burning, and being overcharged with aduſt matter, or ashes, Nature, by the offensive irritation of it, is provoked to a *Criſis*. And (continues that learned Author) if the matter can be easily separated from the Blood, and that the pores of the skin be sufficiently free and open, the aduſt matter is together with the serous part of the Blood, thrust out of the Body by sweat; and this is much the best way of *Criſis*: for if it succeed aright, very often at once, in one single conflict, it puts an end to the Disease, without any danger of a Relapse.

The *Criſis* next best to this, is that which is perform'd by an Hæmorrhage. For the aduſt matter moving about with the Blood, is (if it cannot be vented by sweat) transferred upon one part or other, as far distant as may be from the heart, and not seldome violently hurried up to the head, from whence (if the passages be open into the Nostrils) the morbifick matter, bursts forth, together with the Blood: but
if

if it finds no passage, it remains fix'd upon the Brain, and there ensues a Phrensie Delirium, or some other dangerous Distemper of that part. There are likewise other wayes of a *Crisis*, by which nature endeavours to expell the febril matter, not entirely all at once, but by degrees, and by sundry attempts, some part at one time, and some at another, sometimes by Urine, sometimes by Vomit, or Stool, by Spots, Pimples, Botches, and the like; but whar way soever she takes, it is requisite (if we expect any happy event) that the burning of the Blood be over, that the adust matter be concocted and rendred fit to be separated.

He goes on and tells us, that the state of the Disease is of one kind and Simple, and alwayes after the same manner, but with a very different variety of Symptoms, and with a tendency to Events which are very divers. But, notwithstanding this, it is requisite, that a prudent Physician be able to pass his prognostick in what time the Disease will come to the state, and what issue it may be like to have.

If the Fever from the beginning be vehement, and of a sudden fires the whole mass of blood; if with fierce Symptoms, it constantly and equally continue burning, without any remission, most commonly within

within four days there will have been so great a deflagration of the blood, that the adust matter, which is to provoke the *Crisis*, will arrive at its due fulness and turgescency. But if the beginning be more mild and slow, and the burning of the blood often interrupted, the Fever will not come to its height before the seventh day. But if the beginning be yet more sluggish and remiss, the state of the Disease uses not to happen before the Eleventh or Fourteenth day.

Now although a perfect *Crisis* happen not sometimes before the Fourteenth; Seventeenth, or perhaps the Twentieth day, because before that time, all the requisite conditions to the perfect judgment of the Disease do not concur; yet in the meantime, some slight skirmishes happen, by which the adust matter growing to a fulness, is by degrees something emptied, till Nature can be in a condition to attempt the discussing of the whole. But forasmuch as during the burning of the blood, continually within the space of four days, great store of adust matter is increased within the Vessels, Nature (except she be by some accident disturb'd) is every fourth day provoked by the fulness of the matter, to free her self from her burden.

Where-

Wherefore most commonly on the Fourth, Seventh, Eleventh, and Fourteenth days, not from the influence of the Planets, but from a necessity in Nature, some Critical motions use to happen.

This account of Critical days, and the reasons of them, I have taken out of Dr. Willis his Book, *De Febris*; and the rather, that I may do him right in relation to his judgment of the Doctrine of Critical days, since M. N. by quoting three or four words out of him, without taking any notice of the rest of his Discourse, would faintly insinuate, that this learned man is of his opinion; but he has not only sufficiently declared himself to the contrary, in the places by me already quoted, but elsewhere in his Pharmaceutick directions.

And now, let any man judge, whether the Doctrine of Critical days be to be cashier'd, as of no use in Physick; when certainly the poor Patient, who in a Fever commits himself to a Physician ignorant of the times and motions of the Disease, runs the same hazard with a ship expos'd to the Ocean without a Pilot, which is by the same Sails; which well managed, would have carried it into a safe Harbor, driven upon a Rock, and hastned to its Ruine. For though it be granted, That Fevers are often-
times

times extinguished in the beginning, by seasonable bleeding, vomiting, or gentle purging, as occasion shall require; yet, by *M. N.*'s favour, will they not always yield to these Methods much less to his Charms, though he vainly brag, *That without bleeding, and yet allowing of Wine, he will either extinguish a Fever by the Seventh day, or be able to pronounce what will become of the Patient.* The latter of which I do not question but he may do, since by his method he may determine of him, as certainly as King James did of the *Southsayer*, who had prophesied of His death; when the King prov'd the better Prophet, by foretelling the day whereon the Wizard should be hang'd; *M. N.*'s Medicins being no less fallible than the Halter.

Me. Med.
P. 330.

In the next place, *M. N.* picks a quarrel with the Ancients about their Doctrine of Pulses, which, he says, let us regulate as well as we can, 'tis fit he should tell the World, there is little certainty of judgment to be made by them of a Patients case.

Now since he is resolved to cavil with the Ancients, for leaving to us too elaborate and accurate a Doctrine of the Pulse, he must give me leave to tell him, That if they Treat too nicely of the matter, he handles it much too loosely and slovenly. For certainly there

there is no Physitian who has been accustomed to handle the Pulse of sick men, and has not his fingers constantly benum'd; but has discern'd in the beating of the Arteries, not only the absolute, but likewise the respective differences of Motions or Pulses.

And as a vehement, and a weak; a great, and a little; a swift, and a slow; a frequent, and a rare; a hard, and a soft; are by *M. N.* acknowledged to be established upon very good grounds: So, whosoever is frequent in handling the wrists of sick and dying men, will find that there is very good reason to admit the other differences; especially such as arise in respect of equality and inequality, in respect of order, and in respect of Rythm or proportion; for the reasons of these, as well as the simple motions, are not hard to be understood from the true consideration of the motion of the heart and blood, and are to be met with, accomodated to that *Hypothesis* in the Writings of the learned Dr. *Highmore*, from whose account it is very clear, That the *Pulsus* *μωργοι*, *deficientes*, *intermittentes*, *intercurrentes*, *caprizantes*, *dicroti*, *undosi*, *vermiculares*, *formicantes*, *tremuli*, *serrati*, are not (as *M. N.* calls them) Quirks, and Quillets, and hard words; but really different

High. Corp.
Human.
Disquis. l. i.
p. 2. c. 8.

ferent motions of the Heart and Blood ; and, he tells us, that *In morituris semper aut unus aut singuli reperiuntur.*

If any one be pleas'd with Extravagancies and Whimsies concerning the Pulse, he may find enough of them in *Paracelsus*, who gives this wild account of the Pulse.

Paracels. l.
de Pestilent.
Tract. 1.

Pulsus, est mensura temperaturæ in corpore secundum proprietatem Sex locorum quæ Planetæ occupant ; duo in pedibus attribuntur Saturno & Jovi, duo in collo veneri & Marti, duo in temporibus Lunæ & Mercurio ; Pulsus Solis est in sinistro latere sub corde ; Hinc sequitur si Pulsus celerius movetur quam fieri debebat, pati septem membra principalia, Cor cerebrum, hepar, fel, renes, unde & Pulsus irritetur sive ad iram concitetur. Si vero aliquod principale membrum a morbo vincatur, Pulsus debiliter movetur, quod aer, sive Spiritus vitæ eo loci obstructus est : And he has farther in another place, Pulsus manere usque ad mortem, imo aliquando quadrantem horæ post mortem.

Tom. 2. p.
743.

Concerning this opinion of *Paracelsus*, the impartial *Sennertus* delivers his. What, I pray, says he, can be more absurd, and argue a greater ignorance of humane body, than for *Paracelsus* to write, That the Gall, the Reins, the Liver, have peculiar Pulses ; and to ascribe to the Pulse the passion of Anger ?

Sennert. de
Con. & Dis-
sen. Chym.
cum Gal. c.
18.

For

For if we examine the Original of the Arteries, and the use and intent of the Pulse, we shall find, that every alteration in that, immediately comes from the Heart.

As to the Directions which are to be drawn from consideration of the Pulse in Diseases, they are of so much importance to a Physitian in a Fever, as the Card, and Needle, to a Pilot in a storm; no hand of a Watch or Clock, does more exactly signify the motions of their inward Springs and Wheels, than the Pulse does the alterations made in the great Engine of Life, the Heart. The Pulse is (says Frambesarius) *Fidelis nuntius cordis ex quo certissima vitæ ac mortis petuntur indicia, Pulsus magnus & vehemens est virium index in quibus sanitatis restituendæ spes ponitur. Sed Pulsus parvus & languidus facultatis vitalis imbecillitatem indicat, unde mortis metus. Inæqualitas Pulsus semper damnatur si perseveret intermissio juvenibus periculosissima repentinam quippe illis mortem minatur nisi ex arteniarum obstructione, & oppressione fiat, minus pueris, minime senibus.*

Framb.
Can. &
Consult.
Med. P. 25.

The Pulse, says Dr. Willis (whom M. N. confesses to be no Defender of the unjustifiable Doctrines of the Ancients) is consulted like a Weather-glass, appointed by Nature to measure the degrees of the Heat, which

Willis de
Feb. c. 10.

which in a Fever is caus'd by the Bloods being set on fire; if that be intense, and causes a great Ebullition in the Blood, the Artery (as long as the Spirits continue vigorous) beats vehemently and swiftly; but when they begin to be spent, the Strength of the Pulse abates, which is supplied by the swiftness, and the Pulse becomes small and swift. If the Fever be more mild, and the Heat less tumultuous, the Pulse does less recede from its natural temper; and during the whole course of the Disease, a moderation in that, does signifie a Truce between Nature and the Distemper.

Nor does the Pulse only give intelligence of the forces of the Fevers, as of an Enemy; but it acquaints us with the strength of Nature, and its ability to make resistance. As long as there is a good Pulse, all is safe, and there is all reason to hope well; but an ill condition of this, is a very ill Omen, and puts the sick person past hopes; so that without a frequent and diligent examination of the Pulse, the Physitian will neither be able truly to pass his Prognostick, nor safely to administer Physick. Nay, the Pulse is of so great importance in Fevers, that if it on a sudden alter for the worse (though all other Symptoms promise well) it is a dismal forerunner of death; and upon the other hand, if that continue good, though all other Symptoms threaten ill,

we have reason to hope for a Recovery : He goes on, and shews, that without taking advice of the Pulse, neither Purgers, nor Vomits, nor Sweatters, Cardiacks, or Narcoticks can be administred without very great hazard.

I know very well, that what *M. N.* objects is true, that the Passions, the presence of the Physitian, and many other accidents, will make a considerable alteration in the Pulse ; but to infer from hence, that no more credit is to be given to them by *M. Med.* a Physitian, than by a Wise man to a Gypsie, *P. 33.* who crosses his hand to tell his Fortune, is as absurd, as to conclude, from the variation of the Needle , that it is of no use in Navigation, or to affirm, that Watches are not useful to measure Time, because accidental causes, as moist weather, walking or riding with them in the Pocket, or the like, may in some sort retard, or accelerate their motions. The Methodists have been so careful, that in their Institutions, when they treat of the Pulse, they acquaint us with what accidents may make an alteration in them. Therefore *Senner-tus*, and other writers of Institutions, advise, that the Physitian do not, as soon as he comes to the Patient, presently feel his pulse, but stay till the motions which
O the

the presence of the *Physitian* has rais'd in his affections be over, and that then, when he is sedate and quiet, and free from passion, he examin the pulse; and then neither, not presently when he has been stirred, but after the disturbance which was caus'd in his Body by moving of him be over; then, that the Hand of the *Patient* be free from all voluntary motion, that the Fingers be not too much bent or stretched, that the Hand be not sustained by the *Patients* own strength, lest it tremble, and alter the pulse; and then that the *Physitian* is to try the difference of holding the Wrist upward or downward or Sideways, and that he must have frequently accusom'd himself to try the pulses of men in health, and (if it can be done) to learn what sort of pulse his *Patient* had when his Body was in good order.

From these, and several other Cautions given by the Learned, it appears, That though the Ancients held the Doctrine of Pulses to be of great concern in the curing of Diseases, yet they apprehended many difficulties, in giving an infallible determination of their significations; and they seem no more to have believ'd, that every rude hand (which can only scribble an ill

Book) could pass a true Judgment upon the Pulse, than a wise man will credit the Fortune which is told him by a Gypsie; which sort of Vagabonds (by the way) are reckoned up by *Camerarius* in his Catalogue of Mountebanks and Empericks: And truly I think with good reason: for their Predictions are as much to be relied upon, as *M. N's* Physick; and therefore they may be both well ranked together, since he and they (though by different methods) drive at the same end; for as they with their *Pedlers French*, and crossing the hand, he with his *Pox*, and Canting, amuses the credulous Vulgar; that he may with the less suspicion prosecute his grand design upon their Pockets.

I will now conclude, and dismiss the Author of *Medela*, whose Book (though very slight and trivial) I have all along in this Treatise taken notice of, for that it pretends to argue, from the new Discoveries which have been made of late in *Physick*, and, from I know not what imaginary change in the nature of all Diseases, that the old way of *Physick*, in respect of Method and Medicins, is become insufficient and uselesse, and therefore the fundamentals of it to be demolished, and a ridiculous *chimera* of his own substituted in their

O 2

their room. Whereas, the modern Discoveries in Anatomy and Chymistry, are so far from destroying the Practice and Method of the Ancients, that they very firmly corroborate, and establish their Doctrines, by furnishing us with the true reasons of those Processes and Methods which were delivered down to us from them, only upon their experience and knowledge of the matter of Fact, though they were ignorant of the true causes. Thus we know the Ligature in letting of blood was alwayes used by the Chyrurgions, though the reason of it was never understood, before the Circulation of the blood was discovered. Most of the Doctrines in the Therapeutick part of Physick, are like this, founded upon experience; and therefore the improvements in the *Physiology*, and *Pathology* of that Art, will not (as *M. N.* would have it) destroy, but illustrate them: Wherefore in the reforming of Physick, and suiting an Institution to the late Discoveries in *Anatomy* and *Chymistry*, care must be taken, that we imitate wise and thrifty Builders, who, in raising a new House in the place of an old one which they have pull'd down, make use of many of the old substantial Materials, some of which are often much the better for their age.

F I N I S.


 An octagonal library stamp with the text "MVSEVM BRITAN NICVM" arranged in three lines.

MVSEVM
BRITAN
NICVM

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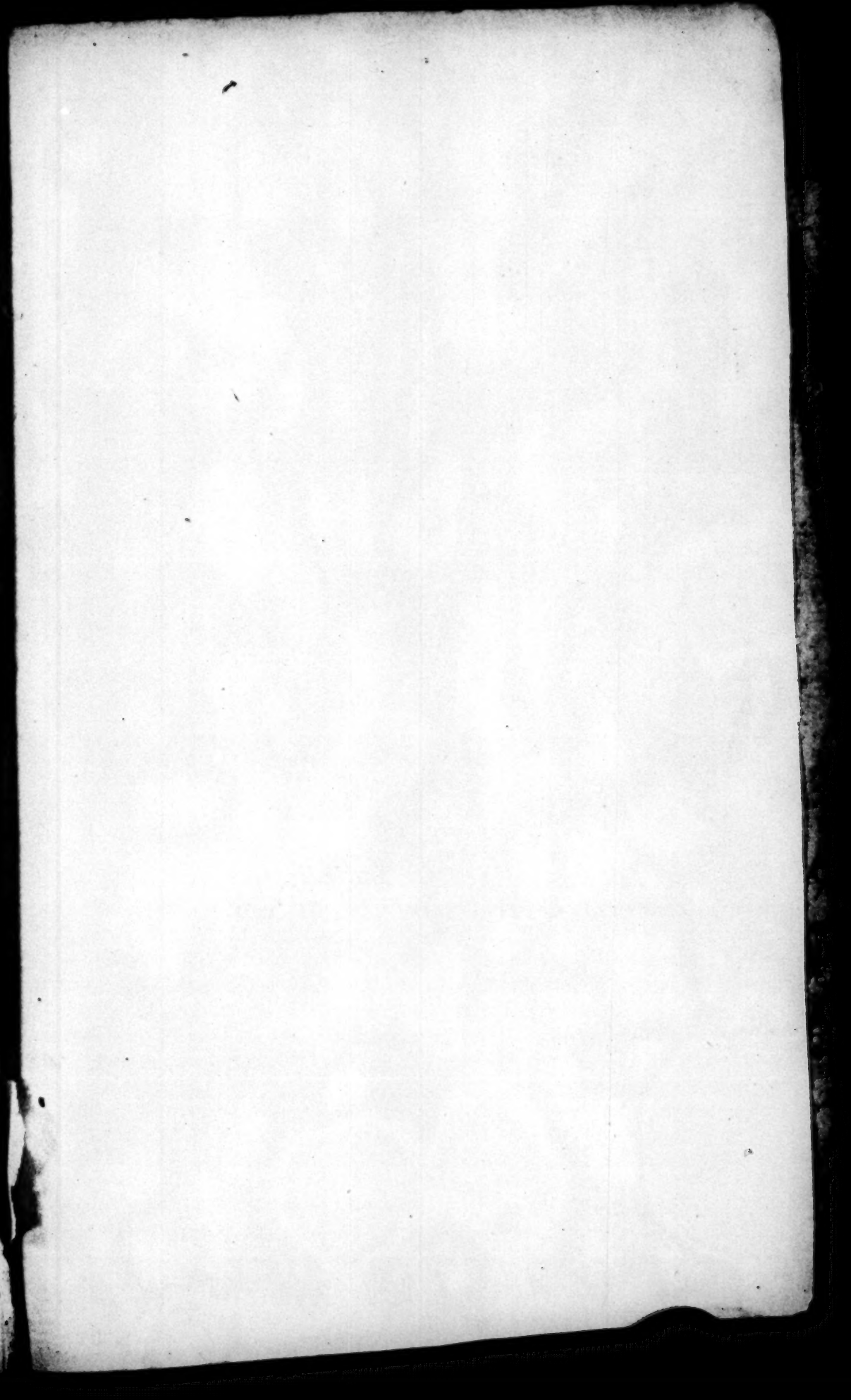
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